Decision 16-12-026 December 1, 2016

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion into Addressing the Commission's Water Action Plan Objective of Setting Rates that Balance Investment, Conservation, and Affordability for Class A and Class B Water Utilities.	Rulemaking 11-11-008 (Filed November 10, 2011)

DECISION PROVIDING GUIDANCE ON WATER RATE STRUCTURE AND TIERED RATES

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DECISION PROVIDING GUIDANCE ON WATER RATE STRUCTURE AND TIERED RATES

1. Introduction and Summary

1.1. California's Historic Drought Reshapes Water Use and Rate Design

In light of California's ongoing commitment to water conservation and the changed water landscape spurred by this historic period of drought, we adopt goals and objectives articulated in Attachment A to this Decision that update the water rate case plan, along with policies and methods to promote accuracy and transparency in water rates, and water service sustainability, quality, and affordability. This Decision adopts as a primary objective an emphasis on rate design that fosters safe, reliable service at just and reasonable rates for all rate payers by using principles of: flexibility to address utility and district circumstances, equity, conservation signals to promote sustainability with a directive to address outlier customer behavior, and action to increase data availability and use for customer and system use.

Phase II of this Balanced Rates Order Instituting Rulemaking was initiated through the April 30, 2015, Scoping Memo which encouraged "bold, creative ideas, including radical departures from our current way of doing business" in light of California's ongoing drought. This proceeding gathered a record "to better understand the effects of our current policies regarding tiered rates, conservation rates, forecasting, data and technology, metering and billing, accounting mechanisms and other programs and how to improve these policies and mechanisms." The drought shaped our evaluation of rate design mechanisms adopted in 2007 and implemented over the past nine years.

As we consider this proceeding, El Niño of 2016 is over. It brought average to moderate rain to parts of Northern California and very little rain to Southern California. Neither has La Niña, a weather pattern that usually augers drought, been declared for 2017, but drought is still on California's horizon. Five years of drought, likely to stretch into six years, demand new steps to account for California's changed reality of scarcer and more expensive water supply, and less water consumption. We must consider bold ideas better suited to ongoing levels of conservation. New approaches are merited to minimize leaks, protect drinking water quality, provide more transparency to consumers about data, consumption, and system requirements, and increase data for system management to maintain safe, reliable, and sustainable water service. Our rate design and collection system must account for this "new normal," and provide customers with timely information and price signals to spur and support conservation and sustainability.

During Phase I of this proceeding, Governor Brown declared a Drought State of Emergency on January 17, 2014, under the California Emergency Services Act in light of California's drought conditions. The Governor issued a Proclamation of a Continued State of Emergency on April 25, 2014 calling for voluntary conservation in light of the continued drought, and the Commission ordered water Investor-Owned Utilities (IOUs) to implement voluntary conservation measures. On April 1, 2015, Governor Brown issued Executive Order B-29-15 that, in part, directed the State Water Resources Control Board (SWRCB) and the Commission to impose restrictions on water suppliers to achieve a statewide 25 percent reduction in potable urban water usage through February 28, 2016. On November 13, 2015, the Governor by Executive Order extended mandatory urban water use restrictions to October 31, 2016. On May 9, 2016, the Governor issued an Executive Order B-37-16 that aims to make conservation a way of life in California, and directed the Commission to take action to address and stem water leaks.

The Commission implemented each of these Executive declarations through resolutions directing our regulated water utilities to take bold action to promote water conservation. The Commission authorized the initiation of voluntary, then mandatory, then a limited version of mandatory conservation, following the SWRCB's policy. The 2014, 2015 and 2016 resolutions urged bold action to encourage conservation, particularly by outlier users such as the top 10 percent of water customers, or in some cases, the top 10 water customers, who used significantly more water than other customers, and to file appropriate advice letters.[1]

Even after mandatory conservation restrictions were removed in June 2016, water consumption levels remained 20 percent or more below 2013 levels, the comparison base year established in the conservation orders and resolutions. California's water consumption landscape has shifted literally and figuratively. During the drought, thousands of lawns were replaced by drought-tolerant, lower water using gardens, outdoor watering decreased, and Californians found creative ways to use less water indoors.

Governor Brown's May 9, 2016 Executive Order B-37-16 directed this Commission to order the water IOUs to accelerate efforts to minimize leaks. It directed the SWRCB to propose, by January 2017, long-term conservation plans to spur mandatory reductions in urban water usage. Those long-term plans

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[1] *See*, Resolution W-4976 (February 27, 2014), Res. W-5000 (August 14, 2014), Res. W-5032 (April 9, 2015), Res. W-5041 (May 7, 2015), Res. W-5082 (February 11, 2016), and Res. W-5103 (June 9, 2016) as corrected by Res. W-5105 (June 30, 2016).

build on the 25 percent water reduction levels imposed by previous Executive Orders, and reflect lessons learned during the drought. Executive Order B-37-16 also directed the Department of Water Resources (DWR) to develop, by January 10, 2017, new water use targets as part of a permanent framework for urban water agencies. Those targets complement existing laws that require a 20 percent reduction in urban water use by 2020. New targets will recognize local conditions, revise indoor residential per capita water use targets, consider local outdoor irrigation needs and climate, commercial, industrial and institutional water use, and water lost through leaks.

The Commission will evaluate the SWRCB and DWR 2017 proposals and consider a resolution to direct water IOU action in light of these proposals. Water conservation levels will likely continue and may even accelerate following such a resolution implementing the SWRCB and DWR decisions. Any adopted rate design must provide continued incentives for conservation of water supplies.

1.2. Policy Decisions to Promote the Goals and Objectives of Balanced Ratemaking

To promote transparency, sustainability, and conservation, this Decision orders Class A and B water IOUs to propose forecast methodologies in their General Rate Case (GRC) applications following the effective date of this Decision to more accurately determine how GRC-authorized revenue will be collected through water rates. Proposed forecast methods shall consider consumption trends during and following the drought which began in 2012. Proposals shall analyze factors that may affect consumption in the next GRC such as drought, flood, climate change, water supply, any proposals to shift the collection of rates to fixed as opposed to variable charges, and the transition to Advanced Metering Infrastructure (AMI). Proposals shall provide analysis and information to make a showing that they are appropriately designed to achieve the objectives of this Decision, and consider the factors stated herein.

Current forecasting methods use the past 10 years of water consumption, and the past 30 years of weather and rain data to predict water consumption. Those forecasts have been wildly off during both the recession of 2008-2010 and the drought years of 2014-2016 following the Commission's institution of voluntary conservation. This divergence between forecast consumption and actual consumption drives up Water Revenue Adjustment Mechanism (WRAM) balances and surcharges, a mechanism used to collect authorized revenues months or even years after the events occurred that caused the disjunction between authorized and actual revenue. Improving forecasting methodologies is key to reducing WRAM and surcharge balances. Inaccurate forecasts provide the air that balloons the WRAM and surcharges.

This Decision orders Class A and B water IOUs that have a five percent or greater divergence (higher or lower) between authorized and actual revenue during a drought period in their current GRC cycle, to consider filing a Tier 2 Advice Letter requesting a Sales Reconciliation Mechanism (SRM) to conform water forecasts authorized in the GRC to actual consumption in light of the circumstances faced in their districts. The SRM will recalculate rates for the remainder of the GRC so that 50 percent of the divergence between authorized and actual revenues will be recovered in rates through the remainder of the GRC cycle, with the balanced recovered through a WRAM if authorized for that IOU, or surcharges. The SRM may be proposed for an individual district, or a combination of districts, based on district circumstances.

This Decision orders Class A and B water IOUs to consider filing in the next GRC application following this Decision a proposal to institute an SRM that puts at least 50 percent of the divergence between authorized and actual revenues in rates to be recovered through the remainder of the GRC cycle, if consistent with the principles adopted in this Decision. That filing may include alternative mechanisms to reduce WRAM balances and surcharges, and shall propose different triggers or time periods for the SRM, such as whether it should only be available during drought or similar periods, or whether it should be an ongoing mechanism. The application shall provide analysis and information to make a showing that the proposals are well-calculated to provide more timely cost information to customers to inform the Commission's deliberation about the appropriate mechanism to address this issue and achieve the policy goals articulated herein.

The GRC may examine whether an application proposing a divergence below five percent is an appropriate trigger for an SRM, or alternative mechanism, and whether recovery of more than 50 percent of that divergence is appropriate for the remaining GRC years to reduce WRAM balances and surcharges, maintain affordability, equity, sustainability, and transparent and clear water price signals. The GRC may also consider whether the SRM should be limited to drought or similar periods or events that effect consumption, or whether the mechanism should be used more broadly and over a longer period of time to minimize resort to WRAMs or surcharges.

We order Class A and B water IOUs to file in the next GRC application following this Decision one or more proposals to adjust customer tiers including consideration of higher tiered rates for outlier consumers or a superuser charge. Such proposals shall provide analysis and information to make a showing that the proposals balance promoting conservation, particularly by outliers, protecting ratepayers from rate shock, recovering authorized revenue to sustain the system and operations, and ensure fairness between ratepayers.

We direct Class A IOUs to consider filing a request in their next GRC a plan, or in a separate application, to install AMI meters over the course of one or two rate case cycles so customers can benefit from more timely data captured to minimize leaks and backflow incidents that endanger water quality, and to enhance customer and system manager information. We order Class B water IOUs to file a request in the GRC application to install AMI meters over the course of one to three rate case cycles for customers to realize the benefits above. These proposals should analyze costs, options for AMI meters, collector and communications networks, barriers to deployment, and options to achieve the above benefits such as use of Advanced Meter Reading (AMR) in areas where collector or communications networks are not reasonably available. The Commission will evaluate the appropriateness of any such request in that GRC or application.

We order Class A and B water IOUs to consider proposing in the GRC application rate design changes such as billing water at daily usage, consistent with AMI readings, as opposed to the current practice of billing for water consumption based on monthly usage. Such proposals shall be consistent with the principles adopted in this Decision including providing correct and timely information to consumers about their behavior, and bills that reflect water conservation and consumption.

This Decision orders Class A and B water utilities, that seek to adjust current rate design, to consider submitting proposals in their next GRC application to shift more water rate collection to fixed charges, with a floor of 40 percent of revenues collected from fixed charges, and up to 50 percent fixed charges. Such proposals shall provide analysis and information to make a showing that they are well-designed to lessen WRAM balances and surcharges as water quantity consumption declines, and to meet the principles adopted in Attachment A of this Decision. The Commission will analyze in the GRC the projected effect of such proposals on WRAMs, Modified Cost Balancing Accounts (MCBAs) balances, surcharges, equity, affordability, and sustainability, and the principles outlined above in this Decision. Such proposals shall consider changes to low-income programs to promote affordability, equity, conservation, and transparency.

Water utilities that propose changes in the monthly or bi-monthly service charges so that greater revenue recovery of fixed costs comes from such charges and less from the quantity rates need to ensure that low-income customers continue to be served affordably. This Decision does not alter current methods for recovery of capital investments, or current low-income programs as other proceedings are considering these issues.

This Decision maintains the current WRAM and MCBA ratemaking mechanism, and the current 10 percent cap on the recovery of revenues that applies to the WRAM mechanism though utilities may propose alternative in their GRC proposals and negotiate those outcomes. The authorization of drought SRMs, requests for GRC proposals to change in forecasting methodologies, and potential shifts to recover more revenue through fixed rather than variable rates should reduce WRAM and MCBA balances and surcharges.

This Decision recognizes that water utilities and water utility districts must manage distinct variables, including varying water supplies, geographies, conditions, customer-related characteristics, and available accounting mechanisms[2] to adopt and administer rate design. These factors render a single, uniform rate design unreasonable. This Decision's emphasis on flexibility allows water utilities to respond to their particular operational and customer needs while reflecting the Commission's policy decisions.

This Decision also determines that any GRC proposed settlement should be consistent with these principles and this Decision is found to be a factor in considering the public interest.

This proceeding is closed.

2. Procedural Background

The Commission issued this Order Instituting Rulemaking (OIR) on November 10, 2011 to address a major policy objective in the Water Action Plan[3] as it affects multi-district water utilities. That policy objective, the sixth among the six objectives identified in the plan, is to set rates that balance investment, conservation, and affordability. Initially, the Commission focused this OIR on balancing investment, conservation, and affordability in multi-district water utilities.[4] Administrative Law Judge (ALJ or Judge) Gary Weatherford was assigned as the Judge.

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[2] Some water utilities have WRAM and MCBA accounting mechanisms while others do not. The MCBA accounts for lower costs associated with reduced water sales.

[3] The Water Action Plan guides the Commission's regulation of investor-owned water utilities. The original plan, adopted by the Commission in 2005, is available on the Commission's website at:
http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Water/water_action_plan_final_12_27_05.pdf.

The current 2010 Water Action Plan, adopted on October 28, 2010, updates the 2005 plan and is available at: http://docs.cpuc.ca.gov/PUBLISHED/Graphics/125501.PDF.

[4] The five multi-district water utilities are: California-American Water Company (Cal-Am); California Water Service Company (CWS); Del Oro Water Company, Inc. (Del Oro); Golden State Water Company (GSWC); and San Gabriel Water Company.

To advance the discussion, the OIR posed eight preliminary questions and requested comments from the named respondents (the multi-district water utilities, and the Division of Ratepayer Advocates, renamed as the Office of Ratepayer Advocates (ORA), and from any other interested persons and entities. Following a Prehearing Conference (PHC) held on May 23, 2012, assigned Commissioner Catherine J.K. Sandoval, issued a scoping memo.[5] Following revisions to the scoping memo on September 16, 2014, which revised the preliminary statement of scope to focus on intra-utility policy solutions and to exclude consideration of inter-utility transfers or other inter-utility adjustments, two workshops were held on July 17-18 and November 6-7, 2012.

On July 12, 2013 the Commission's Division of Water and Audits released a draft report titled Report on Balanced Rate Rulemaking (R.) 11-11-008 (Report), and served it on the OIR service list. Parties filed comments and reply comments on the Report on August 23, 2013, and September 13, 2013, respectively. On February 12, 2014, the final version of the Report, dated January 30, 2014, was served on the service list and posted on the Commission's website.[6] The Report identified and discussed two broad issues: (1) options for mitigating customer bills in high-cost districts, either by establishment of an intra-utility Rate Support Fund (RSF) or alternatively, by further consolidation of water utility districts; and (2) potential revision of consolidation guidelines negotiated by parties in 1992.

On October 16, 2014, the Commission adopted Decision (D.) 14-10-047 which addressed the parties' comments, workshop discussions, and the Report.

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[5] Assigned Commissioner's Scoping Memo and Ruling, filed June 20, 2012.

[6] The Staff Report is available at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M088/K240/88240939.PDF.

D.14-10-047 determined that the district-specific conditions within each multi-district water utility remained too variable for prescriptive guidelines for an RSF or other cross-subsidy mechanism, and that the record did not compel a choice between authorizing cross-subsidy mechanisms within multi-district water utilities and authorizing further consolidation.[7] Further, D.14-10-047 found that in future GRC Applications, or Tier 3 GRC Advice letter filings, respondents, other than ORA and GSWC, shall perform reviews addressing high-cost and affordability problems within any district.[8] D.14-10-047 closed Phase II of R.11-11-008, but provided that Phase I would remain open.

On April 30, 2015, Commissioner Sandoval issued a Third Amended Scoping Memo and Ruling Establishing Phase II (Third Scoping Memo). The Third Scoping Memo identified a scope and schedule for Phase II, to include a review of water conservation rate structures, tiered rates, forecasting methods, accounting mechanisms and other standards and programs that guide water IOU rates, charges, and cost recovery. The Third Scoping Memo emphasized these issues as a result of California's on-going drought, conservation programs, and rate and recovery mechanisms.

Phase II evaluated the effectiveness of the Commission's water rates, forecasts, charge and recovery mechanisms in achieving the statutory objective of safe, reliable water service at just and reasonable rates, and in promoting water conservation. This evaluation focused on policies of rate structure, tiered rates as a conservation signal, and sales forecasting mechanisms, as well as accounting mechanisms such as the WRAMs and MCBAs, and collaboration with other State

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[7] *See*, D.14-10-047 at 7.

[8] *Id.*, Ordering Paragraph (OP) 1.

agencies such as the SWRCB and DWR.[9] Nine water IOUs were added as respondents in May 2015, thereby including all Class A and Class B water utilities in Phase II (D.15-05-046).

The Third Scoping Memo set forth sixteen questions addressing the matters noted above, directing parties to file comments and reply comments on these questions, by May 21, 2015, and June 9, 2015, respectively. The Third Scoping Memo noted that a PHC and workshops may be convened by Judge Weatherford. It also provided that the application of policies that may be adopted in this proceeding to any particular water utility would be considered through a separate phase or through separate proceedings such as GRCs.[10]

Comments were filed by Cal-Am, CWS, CWA, and ORA, on June 11, 2015, and reply comments were filed by ORA and CWA on June 30, 2015.

2.1. September 14, 2015 Judge Weatherford Ruling

On September 14, 2015, Judge Weatherford issued a Ruling Setting Workshop and Further Schedule (September Ruling). This ruling set a workshop for October 13, 14, and 15, 2015, and addressed the purpose of the workshop and this phase of the proceeding: to explore a more comprehensive realignment of water utility ratemaking. Attached to the September Ruling was a set of proposed goals and objectives,[11] a Straw Rate Design Proposal (Straw Proposal),[12] a Forecast Modeling Study,[13] and the Adopted Schedule for this

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[9] *See*, Third Scoping Memo at 2.

[10] *Id*., at 13-16.

[11] *See*, September 14, 2015 Ruling, Attachment A.

[12] *Id*., Attachment B.

[13] *Id*., Attachment C.

Rulemaking.[14] We note that the Straw Proposal represented one example of a new, bold and creative rate design method that achieved many of the goals in this proposed rulemaking and, though it was only a proposal, it provided a helpful basis for a robust discussion.

3. Proceeding Workshop

On October 13, 14 and 15, the workshop was held in the Golden Gate Room at the Commission's San Francisco Office. Reporter's transcripts for each of these workshop days provide a record of the speakers, comments and recommendations with regard to presentations of the attached materials to the September Ruling. During the workshop, CWA sponsored a presentation by Dr. Ahmad Faruqui regarding the relationship between rate structure and cost structure in current water utility rates.[15] Dr. Faruqui and Dr. Frank Loge presented that the 30/70 split misaligns costs and revenues creating economic inefficiencies.[16] The mismatch creates revenue instability.[17]

On November 6, 2015, assigned Commissioner Sandoval issued a ruling (ACR) providing for the serving of comments and reply comments to the workshop, on November 16 and November 23, 2015, respectively. The ACR suspended the proposed serving of testimony and rebuttal testimony, and provided that the transcripts served as a Workshop Report.

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[14] *Id.*, Attachment D.

[15] Dr. Faruqui's presentation argued that only 30 percent of current fixed cost recovery is recovered in the fixed charge, while fixed charges actually represent 70 percent of total costs resulting in economic inefficiency.

[16] Workshop Report, Dr. Faruqui for CWA.

[17] Workshop Report, Dr. Frank Loge Powerpoint.

4. Comments on the Workshop Report

Parties' comments to the Workshop Report supported previous positions on WRAM, rate design, AMI, earnings test, and sales forecasting.

CWA reiterated on behalf of the water utilities that existing rate design mechanisms should not be drastically changed, that the cap on WRAM recovery should be eliminated, and for the use of more timely sales forecasts. CWA argues against the Straw Proposal contending that shifts of revenue recovery from quantity charges to service charges would be burdensome to many customers and may discourage conservation, particularly due to the $5,000/Acre-Foot marginal supply cost in the Straw Proposal. CWA contends that the Straw Proposal will result in unpredictable incentives and will not eliminate the need for sales forecasts and the MCBA because of supply mix variability. CWA supports the idea of flexibility in rate making as a result of many utility district factors to balance, including water sources, geography, ratepayer characteristics. CWA requests a statement of support from the Commission directing water companies to incorporate the use of AMI.

Great Oaks Water Company (Great Oaks) also participated in the workshop and commented on the Workshop Report. Great Oaks supports cost of service rates with a focus on flexibility, a policy directive moving towards the use of AMI, and believes that more frequent sales forecasts should be implemented to utilize new data sources to create more accurate sales forecasts. Great Oaks recommends against significant increases in service charges as reflected in their analysis of the Straw Proposal as such increases, per their calculations, could result in higher rates and diverge from cost of service rates.[18]

[18] Comments on the Workshop Report by Great Oaks Water Company.

ORA notes that any increased service charge could decrease conservation. Although ORA supports better forecasting methods, it believes that more frequent sales forecasts may also negatively affect conservation. ORA does not propose changes in the current controls on WRAM/MCBA such as the 10 percent cap or the applied interest rate, or the current forecasting methods.

We thank all parties that provided comments on the Third Scoping Memo, comments on the Workshop Report, and for their participation in the Workshop. Although parties did not see eye to eye on how to achieve the goals and objectives listed in Attachment A of the September ruling, and discussed in detail at the Workshop, parties agreed that such goals and objectives are worthy outcomes. CWA encourages the Commission to use this proceeding to determine policy direction and permit the water utilities flexibility to achieve it.[19]

The water utilities, CWA and ORA generally agree that economical and socially efficient use of water, at reasonable rates should continue to be an encompassing purpose of water utilities, but should also provide reasonable opportunity for utility recovery of its revenue requirement. Similarly, parties agree that water regulation and rate design must promote conservation, particularly in light of the current significant drought. Parties discussed how accessing data would enable ratepayers to understand usage and promote conservation and everyone expressed a desire for an unequivocal policy directive towards AMI.

[19] Comments on the Workshop Report by California Water Association.

5. Statutory Goals of Water Rate Design per Public Utilities Code Section (Pub. Util. Code §) 701.10

Pub. Util. Code § 701.10 provides policy direction to the Commission in its regulation of water utilities. This code sections states:

The policy of the State of California is that rates and charges established by the commission for water service provided by water corporations shall do all of the following:

(a) Provide revenues and earnings sufficient to afford the utility an opportunity to earn a reasonable return on its used and useful investment, to attract capital for investment on reasonable terms, and to ensure the financial integrity of the utility.

(b) Minimize the long-term cost of reliable water service to water customers.

(c) Provide appropriate incentives to water utilities and customers for conservation of water resources.

(d) Provide for equity between present and future users of water service.

(e) Promote the long-term stabilization of rates in order to avoid steep increases in rates.

(f) Be based on the cost of providing the water service including, to the extent consistent with the above policies, appropriate coverage of fixed costs with fixed revenues.[20]

The regulatory policies adopted below reflect the policy direction in this code section.

6. Scoping Memo Topics, Summary of Comments, and Discussion

We discuss and analyze below, by topic, comments submitted in response to the third amended scoping memo and to the Workshop Report. After

[20] Pub. Util. Code § 701.10.

weighing the record in this proceeding, we make policy determinations as discussed herein regarding these topics and the appropriate rate-making mechanisms to address these issues.

6.1. Forecasting

Rates should yield sufficient revenues to allow a utility to cover its operating expenses and capital costs, that is, service on debt and equity.[21] The public utility commissions must set rates that protect both: "(1) the right of the public utility company and its investors to earn a return reasonably sufficient to maintain the utility's financial integrity; and (2) the right of consumers to pay a rate which accurately reflects the cost of service rendered."[22] The reasonableness of a utility's rates is not measured exactly, but is left to the discretion of the regulatory commission.[23]

Forecasted sales drive rates as they determine how authorized revenue (based on determination of costs, return on equity, and other factors) are to be recovered through quantity rates. Through "forecasts the costs required to deliver that level of water service are estimated and consequently the revenue requirement to support those costs is established."[24] Inaccurate forecasts escalate

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[21] Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603, 64 S. Ct. 281, 88 L. Ed. 333 (1944).

[22] Public Serv. Co. v. Public Utils. Comm'n, 644 P.2d 933, 939 (Colo. 1982) (en banc).

[23] *See* Southern Bell Tel. & Tel. Co. v. Mississippi Pub. Serv. Comm'n, 237 Miss. 157, 238, 241, 113 So.2d 622, 654 (1959).

[24] Richard White, Principal author, Marzia Zafar, Editing Author, Evaluating Forecast Models, the Water Revenue Adjustment Mechanism, achieving an efficient urban water economy requires that the nexus between water rates, water consumption, and water revenues are well balanced, at 5, Policy and Planning Division, California Public Utilities Commission, August 17, 2015, [hereinafter "PPD, WRAM White Paper"], at 5.

WRAM balances and surcharges when actual sales do not match the forecast adopted in the GRC.

Forecasts are by nature a prediction submitted two or more years before a GRC is adopted to anticipate consumption up to five or more years later. Circumstances such as prolonged drought, voluntary, and mandatory conservation, the economy, and other factors may make forecasts diverge greatly from predictions, resulting in inaccuracies that drive WRAM balances or surcharges.

CWA urged this Commission to reform the forecasting methodology. CWA argues that "the cause of under-collections and associated surcharges has been the difference between sales forecasts and actual sales, including projected allocation of sales within rate tiers."[25] ORA acknowledges the importance of forecast accuracy, and has agreed in the Cal Water Service GRC to the SRM mechanism to allow more frequent updates to forecasts. CWA points out that due to declining sales in recent years, the current New Committee Method[26] of adopted sales forecasting has not provided reasonable or accurate results. CWA characterizes the current forecasts methodology as unreliable, and urges the Commission to allow updates of forecasts during the rate case cycle to reduce the difference between projected and actual water sales that today drives large WRAM balances. Indeed, the time to permit the implementation of sales adjustments is overdue as improvements to sales forecasting might prevent large under-collection.

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25 CWA Workshop comments at 10.

26 The New Committee Method was adopted May 24, 2007, as the sales forecasting method in The Rate Case Plan, D.07-05-062.

Policy and Planning Division (PPD) describes the New Committee Method as "a regression model that takes into account several factors that contribute to a water utility's bottom line such as population, household size, climate, and other factors that drive water demand." The New Committee Method includes the following:

- Use monthly sales data for the past 10 years
- Use 30 year average of past years for forecasted values of temperature and rain
- Remove periods from historical data in which sales restrictions (e.g. rationing) were imposed.

These requirements are flexible but designed to reflect the typical or average conditions that a water utility should expect to confront in the coming three year accounting/GRC cycle.[27]

6.1.1. Discussion

The New Committee Method of forecasting is based on the theory that the past 10 years of water sales and the past 30 years of temperature and rain reasonably predict water consumption over the three year rate case cycle. This method is based on the assumption that the past is a prologue for the future and is a reliable basis upon which to predict consumption and set rates. The drought shattered that paradigm.

Following Governor Brown's 2014 declaration of a State of Emergency due to the drought, Governor Brown and this Commission asked Californians to break from previous consumption patterns, and we thank Californians for doing so. This Commission urged efforts to reduce outdoor watering and replace lawns with drought tolerant plants, and to reduce indoor water consumption.

The Commission and IOUs worked with state and local agencies and Californians to accomplish this objective. The New Committee Method's use of the past 10 years of water consumption as the basis to forecast future water sales is incongruous with conservation goals adopted during the drought, and does not reflect the success and the hard work of Californians to escalate conservation.

Since Governor Brown declared a State of Emergency due to the drought in February 2014, water consumption declined for most Class A and Class B water IOUs by more than 10 percent, then by 15 percent, then by 20 percent, then by 25 percent or more, and has settled at more than a 20 percent decline as compared to 2013. Water consumption data for 2011 is an inaccurate predictor for water sales in 2017, let alone sales data from 2007. Similarly, California experienced warmer temperatures during the drought period. The past 30 years of weather and rain patterns is a stark mismatch for this prolonged drought period.

California's drought that began in 2012 was preceded by a nationwide recession that begins in 2007-2008. PPD's analysis of the five water IOUs that use WRAMs showed that "during the recession consumption drops from 2008 through 2010, ranging from a five percent to 35 percent drop."[28] While water use increased for those utilities between 2011 and 2013 it dropped again in 2014 to 2016 to recession levels.[29] Even after the removal of mandatory water conservation in mid-2016, water demand has remained 20 percent lower than 2013 levels.

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[27] PPD, WRAM White Paper, *supra* n. 21 at 5.

[28] PPD, WRAM White Paper, *supra* n. 21 at 7.

[29] *Id.*

The "New Committee Method" relies on historic consumption, weather, and rain pattern to forecast water sales that will be collected by rates. To determine costs that will go into rates, this Commission embraces a "future test year" model, not a "historical test year," creating a disjunction between a forward-looking cost model and a backward looking forecast model. PPD explained the historic vs. future test year model to predict costs:

> Historic test year estimate[s] assume that historical costs are a good predictor of future costs. For example a system of a certain size has a historic record of the fixed costs that are required to maintain and operate the system. In addition to the fixed cost the utility will also incur variable costs which are driven by the amount of water demanded. This includes electricity used to pump water and chemicals used to treat water.
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> The CPUC also incorporates a "future" test year model which includes costs for which there may not be a good historical record. These costs could include new water source acquisition, system retirement costs, pilot programs, new technology investment, expansion projects or other system upgrades. The future test year provides some level of certainty to a utility, since they know which project costs can be recovered before they commit to building/completing to those projects.

Current rate design model is forward looking regarding costs by using a future test year. In contrast, forecasting to determine the rates to recover those costs has been based on historical consumption, weather and rain patterns. Our current rate design model uses historic consumption and weather data, and future cost data.

Drought periods reveal the anachronism of using 10-year historical consumption and 30-year historical weather data to predict future water consumption. Inaccurate forecasts drive differences between authorized and collected rates, and are the engine that drive WRAM balances and surcharges, and mute the price signal from tiered rates into a distant echo.

PPD explains how the disjunction between sales forecasts affects rates and distorts the price signal by shifting its effect to a WRAM or surcharge balance collection. The WRAM and other surcharges are often collected one or more years after the consumption the price signal was intended to affect.

> Consider a revenue forecast that estimates a certain level of water demand q (1) and a commensurate level of water production. Now if there is a drought, a call for water conservation may reduce the total water demand and actual revenue will be less than the forecast revenue. This water demand shortfall effectively raises the cost per unit water produced, i.e. the rate. This effective rate because in decoupled water utilities the revenue requirement must be met regardless of the water delivered. When water demand goes down, the rate must go up. These prices however are not experienced by the consumer in the year of the drought; rather costs are passed on in the following year, p (2). In the following year the utility must decide how much water to procure based on the previous years' consumption and the current year price - including the last year drought surcharge. Consumers will respond to those new distorted prices and land at some new level of consumption according to their demand function. Producers once again update their production schedule based on the 3rd incarnation of distorted a price signal and around the cycle goes.[30]

Inaccurate forecasts and mechanisms that correct this imbalance over years mute the price signal to a dissonant sound often uttered by a mystified consumer reading their bill, puzzled over a WRAM or surcharge. Delayed recovery mitigates the rate shock that can occur with prompt recovery of under-collection. It also mutes price signals and passes the buck to future bills. Better forecasts

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[30] PPD, WRAM White Paper, *supra* note 21 at 9.

could stop this cycle, as would mechanisms to allow for timely true-up of forecasts to actual consumption behavior.

We have entered a new paradigm for water consumption as the drought continues and the weather brings us less rain and snow. Californians have heeded our calls and conserved in record numbers, and water IOU customers have done a particularly good job at conservation. As Governor Brown stated in his 2016 Executive Order B-37-16, water conservation must be a California way of life. Governor Brown's orders and the Commission's resolutions, the work of sister state and local agencies and the efforts of Californians have literally changed the landscape of California by incentivizing the removal of lawns, less outdoor watering, and taking steps to eliminate water waste and minimize leaks.

We need new forecast methods. The "New Committee Method" is based on assumptions not applicable in this prolonged and likely continuing drought. High levels of conservation are the "new normal." We should not defend inaccuracy in forecasting or prolong this ill-suited mechanism for the new drought-conscious California landscape. Our forecast mechanisms must recognize and use the drought years as a basis for forecasting or at least explain why any non-drought years should be considered a reliable predictor of future consumption, weather or rain. The time to expect better forecasting has arrived.

6.1.2. SRM and other proposals to update forecasts between GRCs

In addition to updating the forecast mechanism, CWA recommends establishing a policy favoring timely adjustment of sales forecasts for the WRAM/MCBA companies, and any other company that may request such a mechanism, when current forecasts prove inaccurate. CWS and CWA request that the Commission approve use of methods such as the SRM adopted in D.14-08-011 to correct more frequently for GRC forecast errors.

That SRM allows a water IOU that experiences more than a five percent difference (higher or lower) between aggregates sales for the past year as compared to adopted test year sales to adjust the estimated annual sales forecast during the remainder of the rate case cycle by 50 percent of the difference between the GRC-adopted forecast and actual water sales. Changes in rates due to SRM adjustments are included in the annual escalation year rate changes for the following GRC test years. The balance of the 50 percent of the mismatch between sales as adopted in the GRC and recorded sales, as well as imbalances under the five percent trigger, are collected through surcharges imposed over the following six months to three years, as is customary with the recovery of WRAM/MCBA under-collections. CWS and CWA argue that the SRM amplify conservation price signals sent to customers due to their clarity and swiftness as compared to the WRAM.

CWS and CWA also request two changes in applying the SRM: (1) eliminating the five percent trigger so that the SRM would be applied for any variation between actual and forecasted sales; and (2) eliminating the current 50 percent adjustment limitation used in the CWS SRM so that rates are adjusted for the entire change in sales. CWS argues that the SRM should adjust the forecast to account for 100 percent of the difference between forecasted as compared to actual recorded sales to reduce WRAM amounts and include revenue shortfalls in base rates, a position supported by CWA. CWA would also apply the SRM to all WRAM/MCBA companies, and allow non-WRAM/MCBA utilities to apply it at their discretion.

ORA counters that SRM is not a necessary tool for mitigating drought effects and it opposes allowing all utilities discretion to implement SRM. ORA argues that such discretion may allow some utilities to manipulate the ratemaking process. ORA argues that forecasts are not the only consideration and that accounting mechanisms are also important. ORA recommends forecasts be adopted at conservation levels set by Commission policy and that deviations should result in financial penalties. We note that ORA and Cal Water have proposed authorization of an SRM in the settlement of the pending Cal Water GRC before this Commission.

The Water Demand Attrition Model (WDAM) proposed by the Commission's PPD in a white paper that was attached to Judge Weatherford's Ruling as Attachment C is another mechanism for forecast updates that reflect the effect of reduced demand on forecasts. CWA's comments in response to the workshop recommend adopting the Sales Reconciliation Mechanism/Demand Attrition Model as a permanent feature for WRAM companies and any other companies that may request such a mechanism. PPD's WDAM proposes:

> The algorithm would specify how the water sales forecast would be updated in each year. Some inputs to the algorithm might include drought conditions, reduction in water demand, and hardening of water demand. With this knowledge, an updated expected water demand could be calculated. This new recalculated water sales forecast would establish an updated revenue requirement. The new rate could then be recalculated using the same algorithm establish in the GRC. This is not the same as WRAM balance adjustment, which simply tracks costs and then recovers them in subsequent years.[17]

PPD ran a simulation of a WDAM on a theoretical water IOU and found that "cumulative WRAM balances are reduced by more than half simply by updating the sales forecasts in year 2 and 3."[31] CWA recommends making the WDAM a rate design option for water utilities that request them.

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[31] PPD, WRAM White Paper, *supra* n. 21 at 15.

PPD did not urge adoption of the WDAM model through the Balanced Rates OIR, but suggested that "If the Commission wanted to develop further and discuss this idea then we suggest opening a formal Rulemaking to further investigate." We agree that the WDAM merits further exploration, and encourage utilities to file in their GRC for a WDAM after analyzing mechanisms to analyze and account for drought conditions and hardening of water demand. Such an application should compare the benefits of the WDAM as compared to the SRM, and show that the suggested mechanism is consistent with the principles adopted in this Decision.

The SRM was litigated in Cal Water's 2014 GRC, D.14-08-011, and ordered by the Commission, though the parties did not include it in the proposed settlement in the GRC. The SRM is triggered by a five-percent difference (higher or lower) between forecast and recorded sales, and allows 50 percent of the difference to be recovered in rates during the remaining second and third years of the rate case cycle, with the balance recovered through a WRAM/MCBA mechanism.

The Commission found in D.14-08-011 that the SRM was in the public interest "as it would limit the revenue disparity that is tracked by the WRAM by changing rates, as opposed to applying surcharges and surcredits after the fact, when a disparity between adopted and actual sales will contribute to the WRAM balance at the end of the year."[32] The Decision added, "Rather than benefit Cal Water as TURN claims, the SRM can mitigate the rate adjustments under the WRAM. Such a result would be consistent with the Commission's objective, expressed in D.12-04-048, to consider ways to bring revenue closer to the adopted

[32] Cal Water General Rate Case Decision, 2014, D.14-08-011 at 19-20.

revenue requirement."[33] The Commission approved the SRM for Cal Water in 2014 in light of the drought, and authorized a drought SRM Balancing Account to track rate changes associated with this mechanism and enable review of the SRM in the next GRC.[34] Both the SRM and the WDAM reduce WRAM balances and surcharges, increasing immediately the accuracy of price signals, and providing more transparency to the customer about the cost of water service.

6.1.3. Decision Regarding Forecasting and SRM

Over-estimates of water sales lead to deficits in revenue recovery, and corresponding increases in WRAM balances, surcharges, or other revenue collection adjustment mechanism. PPD's White Paper on the WRAM describes the relationship between the forecasting model currently used in water GRCs to authorize and collect water rates, and high WRAM and under-collection balances that lead to surcharges collected often years after water consumption declines:

> If forecast revenues exactly matched actual revenue than WRAM balances would be exactly zero. When demand is lower than expected, however, revenues drop off and utilities collect less than expected: an under-collection of revenue. Conversely, when demand is greater than expected, utilities will exceed the revenue requirement and over collect revenue. These over and under collections are tracked by the WRAM accounts on a yearly basis. One would expect - if the forecast models were both accurate and stable - that these balances would cancel each other out over time. Over the 7 years of the WRAM program, however, utilities have consistently experienced under collection. This experience has brought attention to the quality and accuracy of

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[33] *Id.*, at 20 (citing Decision Addressing Amortization of Water Revenue Adjustment Mechanism Related Accounts and Granting in Part Modification to Decision D.08-02-036, D.08-08-030, D.08-09-026, and D.09-05-005).

[34] Cal Water General Rate Case Decision, 2014, D.14-08-011 at 19-20.

the demand forecast models that underpin the revenue requirement.[35]

Of the Class A water IOUs using the WRAM, all experienced under-collection in at least some of their districts in 2015, with some under-collections exceeding 20 percent or more of authorized revenue. Under-collections accelerated in 2016 with mandatory water conservation and an increase in voluntary conservation even after mandatory restrictions were removed.

Although the Commission has adopted different mechanisms for forecasting sales, including the "Modified Bean Method"[36] and the New Committee Method, recent drought conservation effects were not adequately captured by these forecasting methods. Neither do those methods account for expected changes in water consumption resulting from the Governor's Executive Orders and this Commission's resolutions and decisions.

To accelerate conservation, Governor Brown's Executive Order B-37-16 ordered the SWRCB to, by January 2017, propose mandatory reductions in water that builds off of the 25 percent water reductions imposed by previous Executive Orders in 2016, and the lessons from 2016. That Executive Order also directed the DWR to develop new water use targets as part of a permanent framework for urban water agencies. Those targets build on existing laws that require a 20 percent reduction in urban water use by 2020. The new targets will recognize local conditions, consider indoor residential per capita water use, local outdoor irrigation needs and climate, commercial, industrial and institutional water use

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[35] PPD, WRAM White Paper, *supra* note 21 at 3.

and water lost through leaks, and issue a proposed draft framework by January 10, 2017. While we await the development of those targets and mandatory water reductions, the process initiated by the Executive Order highlight the steps that many California water agencies are taking to promote and mandate conservation.

Enhanced conservation efforts increase the likelihood that past forecasts will not align with actual consumption. While forecasting is by definition a projection, we adopt methodologies to make forecasting more refined with more robust data inputs that reflect changes in conditions during a rate case cycle. Increasing data inputs to forecasting methodologies helps to achieve another goal of developing more available water data for customer and system use.

This Decision encourages water utilities to leverage the work by the California Urban Water Conservation Council, Department of Water Resources and other organizations attempting to bring water demand forecasting to a higher standard, such as the level employed by energy utilities.[37] Annual adjustments to the sales forecast must be permitted so that unintended consequences, like growing WRAM/MCBA balances and surcharges can be reduced or eliminated.[38]

6.1.4. Updating Forecast Methodologies through the GRC

We agree that forecasting based on the New Committee method has become increasingly inaccurate as a means to predict water sales and thus water

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[36] The Modified Bean Method is a multiple-correlation regression method which adjusts recorded data for temperature and precipitation and forecasts future water usage.

[37] Comments on the Workshop Report by California Water Association.

[38] Comments on the Workshop Report by Great Oaks Water Company.

rates. Particularly during the drought period and likely ongoing conservation initiated by Governor Brown's drought declaration and Executive Order and this Commission's decisions, forecast methodologies need to be updated to take into account changed water consumption patterns during and following drought years.

Like the Big Bang Echo, WRAMs and surcharges that collect authorized revenue years after a change in water sales or conditions caused authorized and actual revenue to diverge send nearly unintelligible signals originating from events in the distant past, discernible only to the cognoscenti of rate design. This rate delay distorts present and future price signals, spurs confusion about the reason for WRAMs and surcharges, and mutes conservation signals. More accurate forecasts and updates during a ratecase cycle to account for actual consumption patterns as each year progresses align rates to behavior and make the price signal clearer. The record demonstrates a clear relationship between forecasting of future water sales, increased conservation, and resulting WRAM/MCBA balances. ORA and CWA's recommendation to consider new forecasting methods is reasonable.

We order Class A and B water utilities to bring forth proposals in their next GRC application to improve their forecasting methods to align rates to costs, and send timely conservation signals. Those proposals should reflect changes in consumption patterns due to long-term conservation, allow for annual forecast adjustments to yield more accurate rates, and lower WRAM balances and surcharges. These proposals shall be evaluated for consistency with the principles adopted herein and the reasonably predicted effects of such changes on reducing WRAM balances and/or surcharges, affordability, conservation signals, equity among ratepayers, and providing timely and accurate data to customers to promote transparency and signal conservation. These principles are consistent with the objectives of the Bonbright principles: economic efficiency, revenue recovery and stability, rate and bill stability, and customer acceptance and satisfaction.[39]

Changes to low-income programs may also be proposed to maintain affordability and equity with more accurate forecasts. In concert with other policies adopted herein such as shifting more revenue recovery to fixed as opposed to variable rates and AMI deployment, we conclude that the shifts in forecast methodology adopted herein will achieve a balance between conservation incentives, reasonableness of customer bills, and sustainability.

This Decision orders Class A and B water IOUs to consider filing in their next GRC application for an SRM that puts at least 50 percent of the divergence between authorized and actual revenues into rates recovered during the remainder of the GRC cycle, and/or is triggered by divergences of less than five percent. The GRC may also consider whether the SRM should be more broadly available to minimize resort to WRAMs or surcharges that may occur with floods, fire, climate change, changes in public policy, or other factors. That filing may include alternative mechanisms to reduce WRAM balances and surcharges and provide more timely cost information to customers to inform the Commission's deliberation about the appropriate mechanism to address this issue and achieve the policy goals articulated herein. The SRM or alternative mechanism may be proposed for an individual district, or a combination of districts, based on district circumstances. Those proposals shall provide analysis

[39] Bonbright, James R., *et al.*, PRINCIPLES OF PUBLIC UTILITY RATES (Columbia Univ. Press 1961).

and information to make a showing that the proposals are well-calculated to meet this Decision's objectives, and shall be evaluated for their consistency with the principles adopted in this Decision.

Any proposed GRC settlement on forecasting methodologies shall be consistent with the goals and principles adopted herein to be found to be in the public interest.

6.1.5. Authorization of an Advice Letter Process to Initiate an SRM during drought years between GRCs to Aligning Forecasts with Recorded Sales

In light of the record of large WRAM balances by all Class A utilities who use them, and large surcharges associated with the drought leading to collection of authorized revenues months or years later after water consumption, we determine that it is not sufficient to defer these policy recommendation to the next water IOU GRC. A Commission decision on a GRC application filed in 2017 would not be expected until late 2018, with rates going into effect in 2019-2021. Waiting two or three years more to consider in a GRC authorization of mechanisms to improve forecasts, reduce WRAM balances and surcharges, and increase the timeliness and accuracy of conservation signals communicated through rates is not prudent during the ongoing drought. While we do not know when the drought will end, we know WRAM balances and surcharges have been persistent and growing with declining water sales. It is important that we authorize mechanisms in the interim between rate cases during this prolonged drought period to address these circumstances not anticipated when the rate case was adopted.

The record of substantial WRAM balances or surcharges imposed over months or years on Class A and B water IOUs customers due to mismatches between authorized revenue and sales demands action now to better align forecasted rates to recorded sales. Accordingly, this Decision orders Class A and B water IOUs that have a five percent of greater divergence between authorized and actual revenue during declared drought years in their current GRC cycle, to consider filing a Tier 2 Advice Letter requesting an SRM to conform water forecasts authorized in the GRC to recorded consumption in light of the circumstances faced in their districts. The SRM recalculates rates for the remainder of the GRC so that 50 percent of the divergence between authorized and actual revenues will be recovered in rates through the remainder of the GRC cycle, with the balance recovered through a WRAM if authorized for that IOU, or surcharges. The SRM may be proposed for an individual district, or a combination of districts, based on district circumstances.

As currently utilized, the SRM adjusts future usage according to recent recorded usage as part of the escalation year increases which occur in the two years following a GRC Test Year. The Advice Letter may request a delay or an update to the escalation factor filing (for escalation of rates during GRC cycle years) to consolidate the request for SRM and the escalation filing, or be filed and considered as a separate Tier 2 Advice Letter requesting authorization of an interim SMR is appropriate during this prolonged drought period and in light of the conservation record and in anticipation of ongoing conservation with the implementation of the B-36-16 regulations from Governor Brown's Executive Order and this Commission's anticipated and existing resolutions.

6.2. WRAM/MCBA

6.2.1. Party Comments and Proposals

Five investor-owned water utilities, Cal-Am, CWS, GSWC, Liberty Utilities (Park Water Company) and Liberty Utilities (Apple Valley Ranchos Water

Company) are currently authorized to use WRAM accounting mechanisms to track the difference between adopted revenue requirement and actual revenues. This difference is further adjusted for in the difference between authorized and actual variable costs for purchased water, purchased power, and pump tax.[40]

Water utilities that do not have an authorized WRAM may use a lost revenue memorandum account or similar mechanism to impose a surcharge on customers to recover authorized revenues when sales fall short of forecasts. Revenue shortfalls of 0-5 percent are collected over 12 months, shortfalls of 5-10 percent are collected over 24 months, and shortfalls of 10 percent or greater are collected over 36 months. Such collections appear as bill surcharges when the utility applies for recovery of the lost revenue.

CWS states that differences between sales forecasts and estimates of consumption levels per tier in the rate designs and actual sales and consumption per tier resulted in substantial under-collections and large WRAM balances during the early years when the rate designs were implemented. Cal-Am, CWS and CWA argue that the continuing drought increases the size of WRAM under-collections.

PPD's analysis of the WRAM mechanism concurs with the findings of substantial WRAM balances associated with economic downtown and drought.[41] WRAM balances grew with each divergence between forecasts and actual sales, whether caused by response to calls for conservation generally, the drought, economic conditions that led to water conservation, or other conditions. The drought that began in 2012 resulted in unforecasted levels of voluntary, then

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[40] *See*, D.12-04-048, adopted April 19, 2012.

[41] PPD, WRAM White Paper, *supra* note 21 at 7.

mandatory conservation, and prior consumption levels did not resume when mandatory consumption ended. As of October 2016, Class A and B water IOU consumption is down by approximately 24 percent compared to 2013 levels. Meanwhile, WRAM balances and surcharges grew with the reduction in water sales.

Customers under conservation directives who receive service from companies with WRAMs or revenue recovery surcharges are billed later, often years later, to collect authorized revenue as quantity consumption and actual revenue decline. PPD's White Paper Evaluating Forecast Methods, the WRAM, observed that the WRAM has been interpreted to allow "costs incurred in one year should be spread out over several years."[42] "While this type of price smoothing may reduce rate shock it does not reduce the overall cost and also sends confusing price signals to customers," PPD's White paper commented.[43] The WRAM and/or the surcharge produces a delayed signal about the cost of water service and the importance of conservation.

All parties noted problems with communicating with water utility customers about the WRAM/MCBA mechanism, its purpose, methodology, and why it is necessary. A surcharge following conservation is a difficult mechanism for customers to understand. Customer concerns have been expressed in Commission Public Participation Hearings, workshops, community meetings, and customer outreach programs. Customers continue to ask why their bills do not decrease when they consume less water, and are frustrated by mechanisms to collect authorized revenue regardless of conservation. Some customers

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[42] PPD WRAM White Paper, *supra* note 21 at 3.

[43] *Id.*

characterize the WRAM/MCBA as a mechanism to collect profit rather than authorized revenue. PPD's White Paper analyzing the WRAM mechanism observed that the WRAM "has left consumers confused and frustrated - as the cost for water consumed in one year is collected in following years."[44] All parties noted various frustrations faced by customers in understanding rate changes generally, tier structures, application of conservation restrictions, and related matters.

WRAMs and extended surcharges also result in inter-generational inequities as WRAM balances and surcharges are recovered long after lower water sales are booked. Though these water utility parties continue to support the WRAM/MCBA mechanisms and surcharges as effective tools to encourage conservation, they urge reform to forecast and rate recovery mechanisms to shrink WRAM and surcharge balances.

To encourage conservation and allow water utilities to recover revenue requirements despite reduced sales ORA proposes a Water Conservation Memorandum Account (WCMA) methodology. ORA would apply an earnings test to WRAM recovery, and a 20 basis point reduction in return on equity (ROE), to recognize what ORA characterizes as a reduction in sales risk to water utilities resulting from the WRAM.

In response to ORA, CWA argues against applying reductions in ROE to WRAM collections explaining that D.06-04-037 determined that such reductions were intended for water utilities that did not make regular GRC filings. That

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[44] Richard White, Principal author, Marzia Zafar, Editing Author, Evaluating Forecast Models, the Water Revenue Adjustment Mechanism, achieving an efficient urban water economy requires that the nexus between water rates, water consumption, and water revenues are well

Footnote continued on next page

matter was resolved with the regularly scheduled filings required for Class A water utilities under D.04-06-018. CWA contends that WCMA is not a viable conservation revenue recovery mechanism as it reflects past rate designs based on single volumetric rates. Cal-Am takes exception to referring to the WRAM as a risk management tool and instead characterizes it as a conservation tool. Cal-Am, CWS and CWA recommend lifting the current 10 percent cap on recovery of WRAM/MCBA under-collections established in D.12-04-048.[45] CWA urges the Commission to resolve the forecast mechanisms that drive WRAM balances and long recovery periods.

CWA and ORA disagree over the implications of the transfer of risk of revenue recovery as a consequence of the WRAM mechanism. CWA argues that the WRAM/MCBA corrects for customer growth and usage variations by the simple comparison of revenues recorded and revenues estimated. Consequently, the risk that customers will pay more for their water than is reasonable is balanced by the risk that the utility will receive less than their adopted revenues. CWA contends that the current WRAM interest rates do not compensate for the losses when revenues are not timely received. ORA points out that the Commission has not adjusted ROE to recognize the reductions in earnings risk that are compensated when a utility employs a WRAM//MCBA. ORA argues that earnings risk decreases as the WRAM/MCBA reduce the impact of revenue volatility. ORA notes that WRAM provides for revenues otherwise lost through

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balanced, [hereinafter "Evaluating Forecast Models White Paper"] Policy and Planning Division, California Public Utilities Commission, August 17, 2015, at 2.

45 The cap represents the percentage of the last authorized revenue requirement that can be recovered in a year as a result of WRAM under-collections. WRAM under-collections exceeding the cap are recovered over periods exceeding a year.

pipeline leaks, and courtesy billing adjustments.[46] ORA argues for re-imposing the earnings test prior to authorizing WRAM recovery.

CWA proposes to increase the current 10 percent cap on WRAM recovery.[47] CWA cites the current drought and related mandatory reductions in water usage as creating significant declining sales that enlarge WRAM balances and delay collected for regulatory assets. CWA recommends that the Commission provide for amortizing all WRAM balances within 12 months.

ORA recommends that WRAM continue to be applied as it is currently, including the 10 percent cap, as this provides protection for ratepayers against bill spikes and would allocate some of the WRAM costs back to shareholders. ORA opposes the application of the cost of capital as the interest rate for WRAM balances, arguing that such rates elevate WRAM charges, effectively punishing water conservation.

Parties make differing recommendations regarding recovery of WRAM surcharges. ORA contends the Commission should reduce the number of rate and surcharge approvals outside of GRCs, while CWA suggests more frequent rate changes. CWS does not recommend changes to the current WRAM/MCBA process, and believes it incentivizes conservation. As a solution to reducing WRAM shortfalls, CWA proposes to utilize the SRM to update forecasts to recorded sales,[48] a proposal addressed herein and discussed above. CWA also

[46] These are adjustments to customer's bills that provide forgiving a portion of a bill.

[47] CWA Comments on the Workshop at 25.

[48] SRM was adopted in D.14-08-011, ordering paragraph 43: "If recorded sales are more than 5 percent different than adopted sales, CWS is authorized to adjust its overall sales forecast by 50 percent of the recorded sales variation, flow that change through the revenue requirement (also proportionally changing production costs to match the proposed sales change), and calculate rates based on the adjusted sales." Customers must be provided a notice that the rate

Footnote continued on next page

proposes to increase the interest on WRAM balances to reflect the current rate of return on rate base by including it in the working cash calculation. CWS requests more frequent recovery of drought memorandum accounts by not requiring a two percent threshold for recovery of such accounts.

6.2.2. Discussion

In D.12-04-048, we addressed WRAM/MCBA filings and related problems with under-collections, amortization schedules, changes in the WRAM mechanism, and related matters. Although the draft decision proposed that the WRAM cap be 7.5 percent, in response to comments citing financial accounting and cash flow impacts as well as intergenerational equity, D.12-04-048 adopted a cap of 10 percent.[49]

The MCBA accounts for lower costs associated with reduced water sales. With demand reduction, water utilities purchase less water from its purchased water sources, use less energy to pump water through the system, buy and use fewer chemicals to provide safe drinking water. Wholesale water costs have increased during the drought as competition for scarcer water supplies drove up prices. Pumping of groundwater increased for some water IOUs as they were unable to obtain purchased water when the SWRCB severely curtailed, and for a time ceased state water project deliveries. Reductions in water consumption did not always result in commensurate cost reductions for the water IOU, and the MCBA accounted for the cost effects.

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changes results from the SRM. The remaining 50 percent of the balance of the mismatch between sales as adopted in the GRC and actual sales is collected through surcharges imposes over the following months to years, as is customary with revenue recovery surcharges.

[49] D.12-04-048, Ordering Paragraph (OP) 3.

We conclude that, at this time, the WRAM mechanism should be maintained. There is a continuing need to provide an opportunity to collect the revenue requirement impacted by forecast uncertainty, the continued requirement for conservation, and potential for rationing or moratoria on new connections in some districts. These effects will render uncertainty in revenue collection and support the need for the WRAM mechanism to support sustainability and attract investment to California water IOUs during this drought period and beyond.

Concomitantly, we adopt steps to lessen resort to and impact of WRAMs by allowing for requests to institute a drought SRM and propose improvements to forecasting as discussed above. Poor consumption forecasts, with mismatches between forecasts and actual sales, is a primary driver of WRAM balances.

Since we order Tier 2 Advice letters for Class A and B water IOUs who apply to implement SRMs during the rate case cycle years in this drought period, and order proposals to adjust the forecast mechanisms in the next GRC, we decline to adjust the 10 percent cap on the WRAM at this time. The SRM should reduce WRAM balances, and adjustments to forecast mechanisms will further reduce those balances. Maintaining the 10 percent cap at this time is prudent but this cap can be negotiated in GRC or alternative application filings if a water utility wants to take advantage of the flexibility promoted by this decision. Neither do we adopt CWA's recommendation that the Commission authorizes amortization of all WRAM balances within 12 months in light of the potential rate impacts of a one-size-fits-all shortening of WRAM balance recovery and our focus on reducing WRAM balances by improving forecasts and rate design. Class A and B water IOUs may propose to change the 10 percent cap on the WRAM or the WRAM amortization period in their GRC as part of a rate design proposal including adjustments to forecast mechanisms to provide clearer price signals, more transparency, and to reflect better the cost of water service. Those proposals shall be analyzed for conformity to the principles of this Decision.

Likewise, at this time we decline to authorize cost of capital treatment for WRAM balances while we implement mechanisms to minimize WRAMs through authorization of drought SRMs, GRC proposals to improve forecasts, and collection of more rates through fixed rather than variable charges. We recognize the need to maintain financial integrity and the opportunity to earn a reasonable return on used and useful investment to attract capital for investment on reasonable terms for regulated water utilities as provided in Section 701.10, and to maintain sustainable water utility service. This issue is being litigated in Cal-Am's Application 15-07-019 and for Cal-Am will be addressed in that application. For other water IOUs with a WRAM, we will continue to apply the 90-day Commercial Paper Rate to water balancing accounts including the WRAM.

We will not adopt the alternative mechanism of using the WCMA methodology proposed by ORA. WCMA was one method for addressing changes in water usage and corresponding revenues. WCMA was developed at a time when water utilities charged a single quantity rate, a factor that is no longer in effect due to conservation and tiered rate design. This proposed method would add additional complexity to the process of recovering lost revenues through tiered rates.

As discussed below, we propose flexibility to account for individual district, utility, customer, water supply, and other circumstances, and allow Class A and B IOUs to propose an appropriate mix of fixed to variable rate charges with a floor of 40 percent revenue collected through fixed charges as discussed in more detail below. Such proposals should achieve safe, reliable service at just and reasonable rates, equity for low-income rate-payers, reduce WRAM balances, signal conservation, and increase data availability for customer and water system management. Any proposed settlement that does not recommend a floor of 40 percent of recovery from fixed charges shall be accompanied by substantial analysis to show that the proposed rate structure is likely to reduce WRAM/MCBA balances, while providing timely conservation signals and promoting sustainability.

Proposals to increase recovery of rates through fixed as opposed to variable charges will also reduce WRAM balances when consumption declines. We will not adopt a uniform ratio between these two revenue recovery characteristics, but direct the utilities to propose adjustments to the percentage of revenue recovery collected from fixed charges with a 40 percent floor and up to 50 percent fixed charges, or submit alternative proposals reduce reliance on WRAM/MCBA balances, for those utilities that seek to adjust their current rate designs for collection of revenues through fixed rates as explained in more detail below. We expect that water utilities in their GRCs will propose some changes to existing ratios to promote transparency, sustainability, affordability, equity, and timely signals and data to customers as discussed in more detail below. SRMs, adjustments to forecast mechanisms, recovery of more rates through fixed rather than variable charges, and flexibility in tiers, with increased deployment of AMI and low-income programs are well-calculated to reduce reliance on high WRAM balances and delayed billing on ratepayers.

6.3. Rate Design, Tiered Rates, and Conservation

6.3.1. Party Comments

Cal-Am believes that the current tiered rate structure promotes and signals conservation. Cal-Am argues that tiered rates need to be flexible as districts respond differently to tiers due to varying household incomes. Cal-Am contends that high income households respond less directly to conservation rates, while low-income customers may find rates unaffordable due to consumption at higher tiers. Cal-Am points out that, because of size of the relatively smaller water utility customer base compared to energy utilities, the ability of upper tier customers to support customers in lower tiers is not sustainable. Cal-Am explains that for a rate policy to be sustainable all customers must be signaled with the actual cost of service. Cal-Am supports use of higher tier revenues to fund conservation, purchased marginal water costs, AMI, and related costs necessary to develop conservation programs.

Cal-Am cautions that full revenue recovery from lower tier usage may result in collecting more than authorized revenue, raising legal concerns. Mutual Water Companies (Mutuals) argued that shifting a dramatic amount of the cost increases to the lowest water-using customers is problematic from an equity perspective, and does not lend itself to customer acceptance.[50] CWS and CWA point out that collecting the full revenue requirement from lower tiers negatively affects affordability for low-income customers, and lessens financial incentives to conserve.

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[50] Workshop Report Transcript, The Mutual Water Companies, Day 1.

CWS supports the use of tiered inclining block rates to signal conservation, especially in light of voluntary or mandatory conservation requirements. Cal Water's residential customers reduced consumption significantly in response to the implementation of tiered rates.[51] CWA and ORA agree.

CWS explains that for its rates effective in 2014, pursuant to a negotiated settlement from its 2012 GRC, CWS used the goal of collecting 70 percent of revenue requirement from quantity rates, and 30 percent from the service charge as a guide in designing residential rates. The 30 percent/70 percent revenue recovery from fixed costs ratio was the subject of a San Gabriel Valley Water Company pilot conservation rate design decision adopted in 2010.[52] The larger percentage of revenue is tied to commodity rates rather than fixed charges. With the bulk of revenues collected in variable rates, sales declines reverberate as revenue shortfalls resulting in WRAM surcharges.[53] CWS contends that there should be flexibility to establish differences between tiers to reflect water district circumstances.

In addition to supporting more flexibility between fixed and variable cost recovery, ORA recommends that larger rate increases focus on customers with greater discretionary and outdoor water use. ORA recommended rate designs directed at the highest usage tiers to reduce discretionary usage. ORA believes the goals of rate design should be affordability and conservation, including

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[51] Opening Comments of Cal Water Service on the Third Amended Scoping Memo.

[52] The 30 percent/70 percent goal of recovering revenue from fixed or monthly rates vs. quantity rates was developed in D.10-04-031, adopted April 14, 2010, and from Best Management Practices of the California Urban Water Conservation Council. (*see*, www.CUWC.org.)

[53] Opening Comments of Cal Water Service on the Third Amended Scoping Memo.

recognition of the minimum water quantity for human needs. Cal-Am also supports the concept of a minimum amount of water in baseline amounts for human needs. These statements are further supported by statute as reflected in Water Code, Section 106.3.[54]

The desire for flexibility to recognize individual district, system, water supply, and customer characteristics was thematic throughout this proceeding. Flexibility, as opposed to establishing uniform standards for all water districts, enables water companies to account optimally for and recover fixed and variable costs in light of the varying circumstances of water districts, water supplies, geographic conditions, and ratepayer demographics, while supplying safe drinking and meeting fire response standards. CWA and ORA also support greater flexibility in accounting. As the Mutuals commented:

> One size does not fit all, as a result of a water utilities resource mix and other factors. When you're assuming that you are going to be getting 50 percent of your water from the California Water Project and instead you got zero, that dramatically changed the resource mix. And we don't really have control over what is going to happen to that in the future.[55]

As noted by Commissioner Sandoval's opening remarks at the Phase II Workshop, and supported by parties,[56] water companies have different sources, geographical constraints, and customer bases, and thus not only are the water utilities different amongst themselves, but also there are similar variances in their districts. For these reasons, it would be unreasonable to expect that one rate design will encourage and achieve needed conservation in a particular company

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[54] *See*, Water Code, Section 106.3.

[55] Workshop Report Transcript, The Mutual Water Companies, Day 1.

[56] CWA Comments at 4.

or district. CWA argues that utilities should propose changes appropriate to the circumstances in each rate area and the customers served.[57]

Discussion about the Straw Proposal drew out a conversation about the concept of designing rates so that they reflected the potential marginal cost of additional water supplies. While long run marginal cost (LRMC) of water varies for water utilities, the Straw Proposal offered an alternative reflecting the cost necessary to produce water from sources such as recycled or desalinized water. The Straw Proposal suggested that the upper tier of a rate represent the LRMC for the next increment of purchased water.

What LRMC is appropriate for a water utility will vary by its potential water sources and options for development of additional water supply. The costs of the LRMC will vary depending on the source chosen and many other factors. In some areas water IOUs are able to harness more groundwater by drilling additional wells, obtaining water at a lower cost than through purchased, recycled, or desalinated water. We note that some groundwater needs extensive treatment while other needs little. In some water basins additional drilling for wells is not permitted. Other basins may be at or near a point where little, if any, water would be yielded through such a process. Some regions have connected storm water runoff to wastewater treatment plants to yield an additional source for recycled water to be treated to drinking water standards. Marginal water supply options vary by district and IOU.

With population and economic growth projected for California, even as we promote conservation, new water resources may be needed. The recognition of the need to consider additional sources of water supply does not diminish our

[57] Comments of CWA on the Workshop at 23.

commitment to conservation. In the Water Action Plan, we recognized conservation as the first source of water, and continue to value conservation as a means to use California's water wisely. Rate designs that reflect the LRMC to buy the next source of water signal the importance of conservation.

6.3.2. Discussion

California Public Utilities Code Section 701.10(c) requires that Commission regulation of water IOUs provide "appropriate incentives to water utilities and customers for conservation of water resources." Section 701.10(f) requires that such regulation "[b]e based on the cost of providing the water service including, to the extent consistent with the above policies, appropriate coverage of fixed costs with fixed revenues." Rate design is a tool to help meet those statutory directives including cost based-rates, minimizing the long-term cost of reliable water service to water customers pursuant to Pub. Util. Code § 701.10(b), and incentivizing conservation. Any adopted rate design must provide continued incentives for conservation of water supplies.

The implementation of increasing tiered rates is a tool useful for achieving conservation. As customers use increasing amounts of water the unit cost also increases. This increase in tiered rates is encouraged, and results in less customer incentive to use water, a result CWA noted.[58] In developing the tiered rate structures, water utilities have used various relationships, such as fixed percentage differences between lower tiers to establish the highest rate tier. ORA recommends that the price differential should be directed towards those customers with outdoor water discretionary use.[59] The Mutuals encouraged pilot

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[58] CWA Opening Comments at 2.

[59] ORA, Reply comments at 5.

programs with tiered speed bumps set very high to help regulate for the outliers who respond neither to price increase, drought surcharges, nor penalties.[60] "The way you can balance that a little bit more is not be so gentle on the high users."[61]

The Commission's five resolutions instituting Rule 14.1, voluntary drought restrictions, and Schedule 14.1, mandatory drought restrictions, adopted since 2014 during the drought directed water IOUs to take bold action to encourage conservation by outlier users that consume large quantities of water.[62] Resolution W-5103 adopted June 23, 2016 directed:

> Finally, the Commission invites bold actions by its jurisdictional utilities to continue to maintain the water use restrictions[3] by including provisions for, but not limited to: (1) mandatory water audits; (2) customer funded remotely read meters; (3) restriction on water use for the top residential, commercial and industrial users, particularly outliers, e.g. those with excessive water use; (4) flow restrictor requirements; (5) restrictive outdoor water rules; and (6) limits on total water use.

The Commission defined outliers as "those users that are in the highest category of water users" and noted that their high consumption "may be masked by

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[60] Workshop Report Transcript, The Mutual Water Companies, Day 1.

[61] Workshop Transcript, Day 1.

[62] *See*, Resolution W-4976 (February 27, 2014) (ordering implementation of Rule 14.1 to encourage 20 percent voluntary water conservation), Res. W-5000 (August 14, 2014) (ordering water IOUs to inform customers of mandatory water use restrictions conforming to the SWRCB regulations), Res. W-5041 (May 7, 2015) (ordering implementation of Rule 14.1 to encourage 25 percent voluntary water conservation), Res. W-5082 (February 11, 2016) (ordering mandatory water conservation of 20 percent through Schedule 14.1 water rationing, and bold actions to address outlier users with excessive water use); and Res. W-5103 (June 9, 2016) (ordering voluntary water conservation of 20 percent through Rule 14.1, including continuing bold actions to address outlier users with excessive water use).

overall consumption from average users."[63] The Commission stated that "Targeting these outliers could reduce overall water use."[64]

As the Mutuals observed, some customers are "outliers who respond neither to price increase, drought surcharges, nor penalties."[65] Outlier customers merit creative and bold approaches as theories about the price signals from our current rate structure do not appear to sway their behavior.

We order Class A and B water utilities to propose pilot programs in their next GRC application to implement very high tiered rates, a superuser charge, or other mechanisms to enable the utility to provide clear conservation signals to outlier users. Such proposals should provide information and analysis, including experienced learned from the drought restrictions, to address very high user outliers and encourage them to conform to conservation targets and mandates. Such proposals shall provide incentives for greater conservation, reduce WRAM balances and/or surcharges moving forward, while maintaining safe, reliable, and sustainable service at just and reasonable rates. This optimization of various and sometimes competing goals requires review in a GRC for consistency with this Decision's objectives.

We order Class A and B water utilities to propose and provide information and analysis in their GRC application estimating the long-run marginal cost of water for each utility district. The proposed LRMC shall take into account for future rate case cycles projections of economic or population growth, drought, flood, pollution, climate change, public policy, or other factors affect water

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[63] Res. W-5103 (June 9, 2016), n. 4.

[64] *Id.*

[65] Workshop Report Transcript, The Mutual Water Companies, Day 1.

resources and water demand. We give flexibility to the water IOUs to propose rate design that reflects LRMC in all but the bottom tier or only in upper tiers, targets outlier users with extremely high consumption, or alternative mechanisms to address high water consumption, particularly by outlier users. Any such proposals shall be accompanied by plans for customer communication about long-run water source options and costs in light of water supply and consumption levels.

We order Class A and B water utilities to consider adjustments to tiered rates to promote conservation, rate recovery, cost-based rates, and equity, providing analysis and a showing to allow the Commission to evaluate the likely effectiveness of those proposals. Such rate design proposals shall propose mechanisms to provide reasonable customer rates and equity for low-income customers, particularly since low-income customers suffer from significant increasing water bills, while providing conservation incentives.

We recognize steep tiers such as those that have been used in Monterey have resulted in very high bills for many customers. If a customer has a leak the water bills can easily reach into the thousands. Thousand dollar water bills result in customers upset and often in revenue write-off as the utility scrambles to identify and fix a leak, often days, weeks, or even months after it occurred. The shift to AMI meters for Class A and Class B water IOUs suggested in this Decision will reduce such surprise high bills as AMI can more promptly identify extraordinary water use and enable action to promptly stop leaks. Proposals to implement steep tiers may be accompanied by plans to promptly identify high usage, such as by accelerating AMI deployment, requiring AMI for outlier water users and allowing a short-term surcharge to that customer to cover some of the

AMI deployment costs, and a communication plan to customer to help avoid and mitigate high usage.

GRC application proposals to escalate customer tiers should discuss the balance between promoting conservation, particularly by outliers, protecting ratepayers from rate shock, recovering authorized revenue to sustain the system and operations, and ensure fairness between ratepayers. We also recognize that conservation may result in increasing WRAM balances and surcharges as discussed above.

As noted above, water districts must balance many factors in rate design: there are interactions between conservation incentives, revenue requirement recovery, and other factors that may conflict in implementation. Higher rates for consumption of large quantities of water send price signals to customers to promote conservation, while also reducing revenues associated with that higher demand. In order for tiered rate designs to promote conservation, the water company must recognize that relationship and be able to utilize accounting mechanisms that offset lost revenue resulting from conservation.

We decline to adopt a one-size-fits all adjustment to the difference between tiers, and encourage proposals that reflect local conditions, demand, water supply options, and other relevant factors to be described in the GRC application. Proposals to adjust customer tiers will be analyzed for consistency with the principles of flexibility to address utility and district circumstances, equity, conservation signals to promote sustainability with a directive to address outlier customer behavior, and action to increase data availability and use for the benefit of customers and systems.

6.4. Recovery in Fixed vs. Variable Rates

6.4.1. Introduction and Party Comments

In 2010 the CPUC adopted a revenue recovery rule that called for 30 percent of revenues to be collected from fixed charges and 70 percent rule of revenue recovery from variable charges.[66] This 30 percent/70 percent rule was developed in D.10-04-031, adopted April 14, 2010, from Best Management Practices of the California Urban Water Conservation Council. We reevaluate that revenue recovery split design after more than six years of experience with its implementation to determine whether this split is properly aligned with the statutory goals of Pub. Util. Code § 701.10 and our principles, goals, and objectives adopted herein.

California Water Association and Dr. Loge presented an analysis that argued the 30/70 split misaligns costs and revenues creating economic inefficiencies.[67] CWA further argues that the 30/70 mismatch between water utility costs and revenue collection creates revenue instability.[68]

In general, water utility fixed costs compromise about 70 percent of total costs. Yet, under the 30/70 split, fixed charges recover only about 30 percent of total revenue. This misalignment leads to economic inefficiencies, higher WRAM balances and surcharges as quantity consumption declines while costs may not decline commensurately. During this drought, some costs have increased,

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[66] The 30 percent/70 percent rule of recovering revenue from fixed or monthly rates vs. quantity rates was developed in D.10-04-031, adopted April 14, 2010, and from Best Management Practices of the California Urban Water Conservation Council. (*see*, www.CUWC.org.)

[67] Workshop Report, Dr. Faruqui for CWA; Workshop Report, Dr. Frank Loge Powerpoint.

[68] Workshop Report, Dr. Faruqui for CWA.

particularly the cost of purchased water made scarce when the DWR curtailed or stopped sales of water from the California Water Project due to the drought emergency. CWA asks that this Decision permit a gradual move towards a more balanced rate structure.[69]

ORA contends that moving fixed costs from quantity to service charges could have a negative impact on conservation signals. ORA agrees that it is acceptable to consider such proposals in a GRC.[70] GRC analysis of proposals to shift the amount of recovery from fixed as opposed to variable charges will provide data to determine the consequences for each utility and each utility district when service charges are increased with corresponding decreases in the quantity charge.

Water utility parties recommend that the monthly service charge be increased to reflect fixed charges and provide greater certainty of revenue requirement recovery. CWA, through its sponsored presentation by Dr. Faruqui, recommends a gradual transition for increased recovery of fixed costs through the service charge. CWA proposed that 50 percent of revenues be recovered through fixed charges, and 50 percent through variable charges. This contrasts to the current practice of recovering 70 percent of revenues through variable charges, and 30 percent through fixed charges.

Parties recognized that conservation is not associated with commensurate decreases in the need for revenue as conservation does not change the need for maintenance, operations, and previously approved capital investment. ORA

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[69] Workshop Report, Presentation by California American Water.

[70] Office of Ratepayer Advocates Comments on the Workshop Report.

while not opposing increases in the service charge, expressed concern that such charges could be detrimental to the conservation price signal to customers.

6.4.2. Discussion

Water utility fixed costs compromise about 70 percent of total costs. Fixed charges recover only about 30 percent of total revenue. This misalignment leads to economic inefficiencies. This proceeding will permit a gradual move towards a more balanced rate structure.[71]

We find that an additional benefit of increasing rate recovery through fixed charges is the reduced reliance on quantity charges to collect authorized revenues, and consequent decreases in amounts necessarily recovered from WRAMs or surcharges. Since the adoption of the WRAM, WRAM utilities have experienced large WRAM balances, leading to long recoveries in customer bills, often years after the conservation that resulted in the mismatch between rates recovered and authorized revenues. For these reasons, we believe that there is a benefit to some increase in service charges when the remaining revenues can be recovered in quantity charges without diminishing the incentive for conservation.

In light of the fact that approximately 70 percent of water system costs are fixed, large WRAM balances and the widespread use of surcharges to recover rates, we adopt CWA's proposal to shift the ratio of revenue recovery between fixed and variable charges. No party presented definitive evidence that the 30/70 split is the key motivator for conservation, or presented analysis to separate out the effects of this rate recovery split from other conservation signals. We are committed to incentivizing conservation, but find the 30/70 rate recovery

[71] Workshop Report, Presentation by California American Water.

mechanism not critical to that objective, and a contributing factor to WRAM balances and surcharges that delay conservation signals by months or years.

We believe that current monthly or service charges may not collect a sufficient amount of fixed costs and therefore result in greater dependence on quantity revenues to collect the remainder of fixed charges. The result is increasing shortfalls in revenue recovery. We also agree with CWA that service charges should increase but in a gradual transition. Since water utilities have significant fixed costs relative to variable costs not all fixed costs can be collected in the service charge. Furthermore it is vital that quantity rates provide strong incentives for conservation. This can be best accomplished when rates are communicated quickly through means such as AMI and rate recovery that aligns revenues collections and authorized revenue.

We offer flexibility to Class A and B water IOUs to make proposals for the fixed/variable revenue recovery suitable to their district circumstances. At the same time, for those utilities that seek to take advantage of this flexibility and adjust their current rate designs we set a floor of 40 percent fixed charge for water IOU revenue recovery for class A and B water IOUs future water GRC applications, unless extraordinary circumstances and detailed analysis submitted in the GRC Application shows that this proposed rate structure is unlikely to reduce WRAM/MCBA balances, provide timely conservation signals, promote sustainability, or will likely result in undue hardship even with any proposed adjustments to low-income programs (the "out clause"). Such applications may propose to phase in the 40 percent fixed rate revenue recovery floor through one or more rate case cycles.

The 40 percent fixed rate recovery floor represents a policy choice between the current 70 percent variable/30 percent fixed practice that has resulted in high

WRAM/MCBA balances, and CWA's proposal to recover 50 percent of rates from variable charges and 50 percent of rates from fixed charges (50 percent/50 percent proposal). We believe the 40 percent fixed rate floor, with flexibility to propose collection of more revenue in fixed charges up to 50 percent, and an "out clause" for extraordinary local circumstances, will reduce WRAM balances, increase bill predictability, and promote conservation, sustainability, cost-based rates, and transparency. GRC proposals to shift the fixed/quantity revenue collection ratio will be assessed for their consistency with the principles of equity, promotion of conservation, reduction in WRAM balances and surcharges, cost-based rates, and increases in cost transparency.

6.5. Advanced Metering Infrastructure (AMI)

6.5.1. Introduction and Party Discussion

This proceeding featured a robust discussion of the potential for AMI to realize the Commission's statutory and policy objectives of promoting cost-based rates, conservation, equity, transparency, minimizing leaks, and enabling new action for water system management. CWS notes that AMI or "Smart Meters" provide real-time data, consistent with discussions in Commission Resolutions W-5034 and W-5041 about the drought and mechanisms to promote conservation, and are familiar to customers through increasing use of consumer and utility devices that measure and send real-time data. CWS proposes that AMI meters be installed as replacement meters when appropriate, in new construction, and as new meters in the transition of flat rate customers to metered customers. Cal-Am notes water is currently billed at monthly usage, not daily usage, so AMI may increase fluctuations in WRAM/MCBA balances unless accompanied by other rate design and billing changes.

CWA argues in comments that AMI is a better alternative to promote conservation than the Straw Proposal's rate design that would recover all of the utility's fixed costs through monthly service charges as AMI enables customers to monitor water use and charges as incurred, and creates immediate incentives to conserve. CWA requests clear policy guidelines to install AMI when demonstrated as cost-effective, in meter replacements, new construction, and transition of flat rate customers. CWA contends that AMI installations may save energy, and that such savings accrue to energy utilities if the water utilities use the existing energy utility AMI system.

ORA proposes pilots to test implementation of AMI since AMI represents a significant capital investment. ORA argues that such installations should be implemented after pilot programs such as the Water/Energy Nexus AMI pilots authorized in D.16-06-010, and consideration of using existing AMI systems. ORA recommends against policy statements favoring AMI.

6.5.2. Workshop Discussion

The discussions during the workshop revealed that many of the issues before the Commission in this proceeding, including conservation signals, customer communication, and the ability of utilities to manage water sources efficiently, have at their root a need for better, more current data on water usage, pipeline, and system conditions. CWA strongly supports the implementation of AMI by water utilities. CWA contends that "AMI is the foundation upon which timely water use data can be provided to customers and companies – data that will further the goals of efficiency and conservation while allowing for more responsive service and communications. Any drastic changes to rate design to encourage particular customer behavior will be ineffective if the customer does not have timely access to water usage information." CWA argues that changes to rate design or signals to engage conserve water "will be ineffective if the customer does not have timely access to water usage information."

At the Workshop, CWA discussed customer requests for more real-time information about water consumption. Devices that monitor an individual's steps and heartbeat are now commonly worn on wrists and communicate data to smart phones, watches, and computers to help consumers manage their health. Currently, most consumers wait two months for information about how much water they consumed at their residence, with the time interval driven, in large part, by the meter reading infrastructure. The IOU workforce of meter readers has done a great job over a long period of time, but cannot provide hourly, daily, or even weekly meter reading information due to the cost of sending our personnel to read meters. AMR solutions that allow for specially equipped vehicles or devices to drive by a meter to conduct readings have been installed by some IOUs, and yield information as the "driveby" is conducted to read the meter.[72] AMR provides more timely information than manual meter reading, but is still limited to the driveby. Even if an IOU dispatched drones to do "fly-by" meter reads in lieu of physical drive-bys, AMR data would not be readable with the same frequency as AMI unless drones buzzed overhead daily or hourly, an unlikely and costly scenario.

CWA points out that AMI provides early detection of drinking water supply contamination risk due to backflow incidents. "Backflow monitoring may indicate a compromise in system integrity of the system, which might require

[72] Truck AMR reading drive-bys likely produce greenhouse gas emissions from company trucks run on gasoline.

disinfection and boil water orders.”[73] “Backflow might be due to a pressure drop in the distribution system (e.g., from a main break or heavy use of a fire hydrant) or an increase in pressure on the customer side. For instance, the customer might have a secondary source of water such as a well. The result is water in the customer service plumbing flows back into the public water system, a concern for water system security. Another potential source of reverse flow is tampering with the meter by turning the meter backwards.”[74] By speeding detection of backflow, AMI can protect water quality at the customer and system level.

CWA contends that AMI will avoid costs for meter reading and service calls, provides leak, theft and loss detection, and reduces water usage and associated costs to purchase or produce water. CWA asserts that AMI enables conservation by improving customer communication, allows real-time feedback to customers about water usage, and allows water companies to target the outliers whose extensive use of water, regardless of price, nullifies conservation efforts.[75] Benefits accrue to customers who can select an option for notification that they are approaching certain usage or billing levels.[76] CWA contends that these benefits cannot be achieved through traditional analog meter infrastructure or AMR, or through ORA's list of theoretically lower-cost alternatives.

CWA argues that AMI provides better tracking of changes in water demand, identifies system or customer leaks, and improves planning and water

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[73] Don Schlenger, Water Utilities Begin the Shift to Advanced Metering Infrastructure,” http://www.waterworld.com/articles/print/volume-24/issue-8/amra/water-utilities-begin-the-shift-to-advanced-metering-infrastructure.html.

[74] *Id.*

[75] Comments on the Workshop Report by California Water Association.

[76] Comments on the Workshop Report by California Water Association.

resource management. These features will aid compliance with drinking water quality standards and the Governor's May 9, 2016 Executive Order B-37-16 which directed the CPUC to take steps to stem water leaks.

The water utilities together provided an update to the goals of this proceeding to include modified goal number 8: "Encourage investment in AMI that will enable both customers and the utilities to observe usage and costs in real time and so promote more efficient and effective conservation."[77] CWA recommends installation of AMI in the conversation of flat rate customers to metered service ("flat to meter"), replacement of aging or obsolete meters, meter replacements in new construction, and gradual deployment to replace all existing meters on a rolling geographic basis.

ORA stated that it does not oppose AMI, but proposes that AMI be implemented through pilot programs, and in instances where the benefits exceed costs. ORA calculates that AMI costs would result in a 6 percent-11 percent rate increases for Class A GRCs. ORA believes these costs represent a significant investment without demonstrated benefits. Thus, ORA recommends installing AMI on a case-by-case basis which would allow for the measurement of costs and benefits.

6.5.3. Discussion

We agree that AMI can harness and communicate data to manage water production and purchases, identify and stop leaks, protect drinking water quality by promptly identifying backwash incidents, produce data that yield more accurate forecasts, and provide customers and water system operators timely

[77] Workshop Report Attachment, Comments on the Workshop Report by California Water Association, Comments on the Workshop Report by Great Oaks Water Company.

information. Current meters do not accomplish these objectives. AMR requires a physical walk or drive-by meter read and communicates information to customers only after the meter reading is passed through the billing cycle. AMR misses the opportunity for prompt identification and communication of high water use and leaks that AMI offers.

Significant leaks can occur in the interval between drive by, walking, or even future drone fly-by meter reads, leading to high bills, especially in IOU service areas with steep tiers. The Monterey Region is replete with stories of $1,000 or more water bills, many of which are due to leaks later discovered. These high bills lead to customer distress, time and costs to the customer and the water IOUs in analyzing the cause of the high bill, lost water due to leaks, and lost revenue when an IOU decides to write the high charge off the customer bill.

In contrast, in areas such as the Burbank Municipal Utility District (MUD) that has installed AMI, when Burbank MUD observes water use 24 hours a day or unusually high water use, particularly at different times than a customer usually consumes water, the utility district calls the customer to notify them of the high use and ask if they can visit the home or business to check for leaks. If a leak is discovered it is promptly repaired, saving water and preventing the high bill associated with lengthy leaks. The Commission should learn from MUDs such as Burbank and East Bay MUD that have invested in AMI, as well as from the IOUs it regulates.

6.5.4. Authorizing Steps to Phase in AMI as Described Below

The Governor's 2016 Executive Order directed the CPUC to take steps to minimize leaks, and the record shows that AMI provides timely information about high water usage that promptly indicates leaks and facilitates repair. AMI data can save water that benefits customers, water system operators, communities, and our state. Accordingly, this Decision orders the commencement of a transition to the use of AMI for Class A and B water services to increase data for customer and operational use, produce conservation signals through real-time data delivery, improve water management, reduce leaks, and promote equity and sustainability.

We visualize many potential benefits of full implementation of AMI, and are mindful of the implications of such investments on customer bills, safety, reliability, sustainability, just and reasonable rates, and conservation. We find that it would be an imprudent use of ratepayer dollars to continue to invest in deployment of 30-year expected life analog meters that don't provide timely information about water use to customers on a daily, weekly, or even monthly basis. Analog meters lack the capabilities of AMI meters to quickly communicate information about leaks, backwash incidents that could affect drinking water quality, and other information critical to the customers and water system managers. While some customers have learned how to read their water meter, doing so may require taking off a concrete cover to reveal the dial. Manual water meter reading is challenging for some customers, and is unlikely to be done in the middle of the night or during inclement weather, limiting the times it could readily provide information. Manual meters require labor investments and a system to support manual reading. When leaks develop between meter readings, thousands of gallons - or even more - of water could be wasted. The customer's consequent high bill often results in distress, investigation requiring a belated truck-roll of personnel, a request for a courtesy bill adjustment, and resulting in revenue impacts.

Digital water meters can help identify water use patterns associated with leaks, leading to action that conserves precious water, and energy use to pump, treat, and convey that water. Information about water leaks may avoid wasteful use of energy such as when a leaky hot water heater system causes a tank to frequently refill, wasting water and natural gas. Our Decision in the California Alternative Rates for Energy (CARE)/Energy Savings Assistance Program (ESA) proceeding, D.16-04-040, directed Southern California Gas Company and Southern California Edison Company to accelerate deployment of the ESA program for low-income Californians to help reduce electricity and gas use to conserve natural gas resource in light of the natural gas leak at Aliso Canyon. It directed attention and priority to leaky hot water heater systems as a way to save energy and water. AMI may also contribute to the prompt identification of water leaks that can in turn save energy including the embedded energy in water, as well as the embedded water in energy.

AMI can be a prudent investment of ratepayer dollars as compared to analog meters which lack functions such as prompt leak detection that is important as we face climate variability and water resource challenges. We find that the potential benefits of AMI to reduce leakage rates, encourage conservation, provide real-time information to customers as is true for energy customers, and to reduce meter reading costs, argue that installations of analog technology for future meter updates and new meters is not a reasonable plan. For Class A water IOUs, this Decision orders a gradual approach to replacement of all existing meters to AMI to be conducted through two rate case cycles on a rolling geographic basis. This Decision orders Class A water utilities to propose AMI deployment in their upcoming GRC applications though a phase-in to AMI over one or two rate case cycles for conversion of existing customer analog meters to AMI. Those proposals will be assessed for consistency with the principles of: flexibility to address utility and district circumstances, equity, conservation signals to promote sustainability with a directive to address outlier customer behavior, and action to increase data availability and use for customer and system use. They will also be assessed for their contribution to leak, backflow, and theft detection, and ability to enable action to address those issues. Those AMI proposals may identify districts or areas where the existing or anticipated communications infrastructure and other factors indicate that AMR would be substantially more cost-effective than AMI, and deploy AMR if comparable leak detection and data communication benefits can be achieved.

We order Class B utilities to consider proposing a transition to AMI over the next one to three rate case cycles, taking into account the circumstances of their districts including water supply constrains, demand, communications facilities to support AMI, customer characteristics, and providing an analysis of relevant factors. Such proposals shall address their effect on providing timely data to minimize water leaks, identify backflow and similar issues that may put drinking water quality at risk, promote conservation, enable greater data availability for customers and system operators, and for reasonableness of costs in light of these and other benefits and the inability of analog meters to provide comparable timely data. To be found to be in the public interest, any proposed GRC settlement shall be consistent with this Decision's policy determination to install AMI over the next one or two rate case cycles for Class A water IOUs, and the next one to three rate case cycles for Class B water IOUs.

Governor Brown's Executive Order B-37-16 issued in May 2016 ordered that we make water conservation a way of life in California to prepare for drought and make California's prosperity sustainable. That Executive Order directed that the Commission "shall order investor owned water utilities to accelerate work to minimize leaks." To comply with Governor Brown's

Executive Order B-37-16 we order Class A and B water IOUs to file applications proposing to convert flat rate customers to metered service, replace aging or obsolete meters, and install AMI meter in new construction, as discussed elsewhere in this decision. Class A and B water IOUs shall investigate collector network and data collection and communication options for AMI including various technologies, wireless, wireline, drones, etc. The water IOUs should address whether the cost associated with the communications and other infrastructure needed for AMI is uniquely high or not reasonably available in that district.

Costs of installing meters, enabling AMI data collection, communication, and analysis are to be treated as construction costs in the next GRC. We intend to treat such costs for ratemaking purpose like any construction when considered in the GRC. Any proposed settlement of the GRC should reflect the policy decision to direct installation of AMI for flat to meter conversions, replacement of aging or obsolete meters, and installation of AMI meters in new construction.

Initiating the process of installing digital water meters to convert flat rate customers to metered service, replacing aging or obsolete meters, and installing AMI meters in new construction is a foundational step to minimize leaks and one that will open new avenues for water conservation, monitoring, management, and planning. It will allow customers to monitor water use through their phones or computers, set up alerts if water consumption or bills are approaching high levels, and inform the utility about possible leak issues. As this Commission has done with energy, the Commission may also consider in a future proceeding whether to establish a cloud-based research database on water use, consistent with consumer privacy and security.

Stemming leaks may also forestall the need for capital investment in new marginal water supply, providing ratepayer savings. Doing so would also forestall the energy infrastructure and use associated with recycled and desalinated water, yielding greenhouse gas savings. Class A and B water IOUs shall coordinate with electric and gas IOUs that have smart meters and may file applications to leverage collector network investment for energy efficiency programs and to achieve this Decision's objectives.

Water IOUs proposing AMI should discuss the appropriateness of their meter choices, including whether their AMI meter type minimizes "welfare check" signals to fellow meters (where one meter signals the other to determine if the other meter is still working), while providing signals about water consumption at least once a day, and preferably more often. Water IOUs should not order AMI meters or systems that send inordinately high numbers of "welfare check" signals such as 10,000 daily signals or more to neighboring meters about their on/off status. Customers who do not wish to have a broken analog meter replaced with AMI may request an opt-out per a process to be proposed by the water IOU in a Tier 2 Advice Letter, which may include a fee for an opt-out and a process for reporting meter reads.

The water IOU may propose deploying AMR if the cost associated with the communications and other infrastructure needed for AMI is inordinately high. AMR allows for a "drive-by" read from an AMR meter to a nearby device that collects that read, and then the downloading of that information upon return to the water IOU office or upload point, so AMR may be feasible even in locations that have limited communications infrastructure outside of buildings. Class A and B utilities shall explore cost-effective means to communicate AMI data, or conduct AMR reads if AMI is not feasible due to communications facilities or other issues such as terrain.

Class A and B utilities are ordered to submit a written report to the Water Division 18 months after the adoption of this Decision on the success and benefits of AMI installations for flat to meter service, replacement of aging or obsolete meters, and installation of AMI meter in new construction and/or for new connections, and any obstacles to AMI deployment such as terrain or communications networks that led to deployment of AMR in lieu of AMI in those circumstances. This report is only for the utilities that propose the installation. The reports shall identify and analyze lessons and challenges associated with AMI installation and operation to inform deployment of AMI through GRCs. Class A and B IOUs will use that information in their next GRC application, proposing adjustments in AMI or AMR implementation based on lessons learned from their operations and from other water utilities including IOUs and municipal agencies, and others.

6.6. Capital Improvements

CWA recommends the Commission encourage capital investments such as pipeline replacement programs to reduce leaks, and recycled water facilities. CWA proposes that water utilities be authorized to file Tier 3 Advice Letters requesting water treatment plant not otherwise included in GRCs. Similarly, CWS proposes that utilities be allowed to recover, through advice letters, those capital costs excluded from a rate case. ORA strongly disagrees. ORA contends that all capital investments including AMI must be considered in the context of GRCs which consider all of the operations of a utility, rather than as single issue proposals.

Although CWA recommends methods to accelerate the inclusion of capital investments not considered in a GRC through the advice letter process, we are not inclined to change the capital authorization process, except as detailed above, to initiate the deployment of AMI meters for flat to meter service, replacement of aging or obsolete meters, and installation of AMI meter in new construction. The current method of considering other such capital investments through the GRC provides a more complete record upon which to analyze reasonableness. If, however, a pipeline breaks or needs immediate repair, it shall continue to be treated in the same manner as any such repair project, and should receive prompt attention to save water and forestall damage to customer premises and infrastructure.

6.7. Low-Income Programs

This Decision does not specify changes to current low-income programs but promotes overall equity for low-income rate payers. The California State Water Board is currently investigating low-income programs in the water sector and the California Public Utilities Commission and Investor Owned Water Utilities will participate in that forum to ensure equity for low-income rate payers under this agency's jurisdiction.

CWA did not propose any changes in the current low-income programs, and cautioned that proposals to vary rates by household size present verification and accuracy problems. CWA explained that water utilities are unable to verify records of household size, and that "experience teaches that varying benefits in ways that are not readily monitored results in gamesmanship and inequitable results." While ORA supports the goal of protections for low-income customers consistent with Commission and State policies, ORA did not comment further on this issue.

At this time we do not propose changes in low-income programs in this proceeding or varying rates by household size, as the WRCB is investigating low-income water utility programs for the entire state. As discussed above, changes in rate design, including shifting revenue recovery from quantity rates to service charges, may affect low-income customers, but it will also reduce bill fluctuations which affect all customers including low-income customers. Water IOUs proposing such rate design changes shall consider their impact on low-income customers and may propose adjustments to low-income programs to protect affordability while achieving this Decision's objectives.

6.8. Simplify Customer Notices and Bills while Providing Access to Information

CWA suggested in its comments that the Commission complement its Balanced Rates OIR policy initiatives by simplifying customer notices and customer billing statements while providing access to information through other means. CWA suggested: "One way to simplify customer bills is to consolidate multiple surcharges into a single line item, with reference to the utility's website for details and with the website actually providing a full and up-to-date explanation of each of the surcharges comprising elements of the total displayed on the customer bill."

At this time we decline this suggestion, as one goal of this Decision is to promote customer transparency. We encourage water IOUs to put explanations about customer surcharges on their websites. Computer and internet access issues (especially for low-income, rural, non-English-speaking customers, and customers with disabilities) indicate that at this time substituting website explanation for bill descriptions is not prudent.

6.9. Goals and Objectives

At the Workshop and in comments parties discussed goals and objectives for water rate design. We find that adoption of the goals and objectives listed in Attachment A will help guide GRCs and consideration of Advice Letters, as well as proposed settlements by clarifying touchstones to meet the public interest standard. These goals and objectives are consistent with the statutory directive to the CPUC for water regulation in California Public Utilities Code Section 701.10.

7. Comments on Proposed Decision

The proposed decision of Commissioner Sandoval in this matter was mailed to the parties in accordance with Pub. Util. Code and Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were due on October 27, 2016, and reply comments were due on November 1, 2016. The comments were generally supportive with changes sought as follows.

7.1. Cal-Am

7.1.1. Opening Comment

Cal-Am expresses concerns over the PD's positions on the 10 percent annual WRAM/MCBA amortization and AMI implementation. Cal-Am proposes changes, variously, in the findings of fact and ordering paragraphs. Specifically, Cal-Am would like the findings to state that

- the 10 percent can be recovered in a year and that greater amounts can be recovered over longer periods;[78] and
- for Class A and B companies "to propose...AMI meters for existing customers, and a schedule to transition existing customers to AMI" is reasonable.[79]

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[78] Comments of California-American Water Company on the Proposed Decision of Commissioner Sandoval (October 27, 2016) at unnumbered 1 of Attachment A.

The changes desired in the ordering paragraphs would mandate that

- Class A and B water IOUs "propose pilot programs...to adjust tiers, impose a super user charge, or deploy other mechanisms taking into account other rate design changes and deployment of [AMI] to promote conservation, rate recovery, cost-based rates, and equity, providing analysis and a showing to allow the Commission to evaluate the likely effectiveness of those proposals;"[80] and "Class A water utilities shall propose [AMI] meters for existing customers, and a schedule to transition existing customers to such meters over the next one or …three rate case cycles" and such "proposals may identify districts or areas where the existing or anticipated communications structure and other factors indicate" that AMR "would be substantially more cost-effective than AMI, and deploy AMR if comparable leak detection and data communication benefits can be achieved."[81]

7.2. CWA

7.2.1. Opening Comments

CWA states that the proposed decision "provides opportunities for the water companies to implement innovative proposals for better sales forecasting and rate design changes responsive to district-specific conditions, while maintain mechanisms that help promote conservation [citing WRAM and MCBA]."[82] CWA lauds this rulemaking "as a genuinely investigative undertaking with opportunities for all sides to learn, develop theories and change minds."[83] CWA believes that the proposed decision "does much to improve future sales forecasting, correct possible errors in future sales forecasts through the use" of

[79] *Ibid.*

[80] *Ibid.*

[81] *Id.* at unnumbered 1 and 2.

[82] Opening Comments of California Water Association on the Phase II Proposed Decision of Assigned Commissioner Sandoval (October 27, 2016) at 2.

[83] *Ibid.*

SRM "or an alternative, adjust rate design to provide clear conservation signals to outlier users, and make timely water use information and leak detection available to customers" through AMI.[84]

CWA sees "one serious omission,' however, namely, a missed opportunity "to address the ongoing concerns for delays in WRAM recovery that harm both the utility and its ratepayers."[85] Specifically, the following finding of fact is offered: "The 10 percent cap will be reviewed in future GRCs and other proceedings to determine if it is needed to smooth rate increases while other rate design elements are changing."[86] Under CWA's approach, the deadlines in the ordering paragraphs would need to be adjusted, PD-proposed requirements for settlements postponed until 2018, allowance for use of advice letter process for implementing an SRM "until the Commission issues a final decision in the water utility's first GRC filed after January 1, 2018."[87]

CWA takes issue with the PD's retention of the 90-day Commercial Paper Rate of interest for WRAM balancing accounts, seeking to have the PD instead "affirmatively adopt a policy for applying an appropriate longer-term rate of interest, reflective of the utility's cost of capital or at least its cost of debt, where circumstances result in a lengthy amortization period—namely, any period over 12 months."[88] CWA seeks changes concerning the PD's treatment of the sales reconciliation mechanism (SRM).[89] CWA sees an inconsistency between the

[84] *Id.* at 3.

[85] *Ibid.*

[86] *Id.* at 5.

[87] *Id*. at 5-8.

[88] *Id*. at 9.

[89] *Id. at 9-10.*

Findings of Fact and OPs 3 and 4, the latter paragraphs needing to refer to actual sales not actual revenue. Rather than a 50 percent divergence between authorized and actual sales CWA seeks 100 percent. CWA wants removal of the condition limiting "the availability of the SRM proposed by a Tier 2 Advice Letter to periods of drought."[90] A number of company-specific issues[91] and alleged technical corrections[92] are also identified in CWA's opening comments.

7.2.2. Reply Comments

CWA's reply comments[93] do not alter the positions taken in its opening comments, and focus on the opening comments of ORA and of the Mutuals, respectively.

The claim of ORA that the "minor modifications" it alleged would result in greater rate design and AMI flexibility is challenged by CWA: "in actual fact, ORA's suggested modifications do little to make the PD more adaptable to district-specific conditions;" rather they would restrict and delay the decision's implementation and should be rejected" according to CWA.[94]

- CWA criticizes ORA's opposition to the PD's requirement that Class As and Bs use AMI meters when installing meters in new construction, converting flat rate customers, or replacing damaged meters (see OP 7). CWA sees the rationale for that OP in Governor Brown's Executive Order B-37-16.

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90 *Id*. at 11.

91 *Id*. at 11-13.

92 *Id*. at 13-5.

93 Reply Comments of California Water Association on the Phase II Proposed Decision of Assigned Commissioner Sandoval.

94 *Id*. at 1-2.

- CWA is willing, however, to see a change in OP 7 specifying "that the directive applies when feasible from a technical and operational standpoint."[95]
- The PD's Tier 2 Advice Letter process for requesting an SRM, which ORA contends can produce unintended consequences and should be eliminated in the PD, is one of the positive tools "to promptly remedy inaccurate forecasts."[96]
- Unlike ORA, CWA supports the PD's move away from the California Urban Water Conservation Council's best management practices for revenue recovery collected via fixed charges.[97]

As to the Mutuals' advocacy in their reply comments of decoupling rate base, revenues and profits, CWA counters that it "could not disagree more."[98] With the modifications noted in its opening and reply comments, CWA Calls for the adoption of the PD.

7.3. Golden State

7.3.1. Opening Comments

Out of the gate GSWC states that it supports CWA's Opening Comments, particularly concerning the 10 percent cap on recoveries of WRAM balances and the "timing of the PD's applicability to current and future [GRC] applications and settlements."[99] GSWC sees ambiguity in the PD's discussion of the 10 percent cap on WRAM balance recoveries, recommending ordering paragraph changes allowing for

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95 *Id*. at 2.

96 *Id*. at 3-4.

97 *Id.* at 4-5.

98 *Id.* at 5.

99 Opening Comments of Golden State Water Company (U 133 W) on Proposed Decision of Commissioner Sandoval (October 27, 2016) at 1.

- the option of an application filing, separate from the GRC, for Class A water utilities to propose AMI for existing customers, with a three rate case cycles for transition;[100]
- a new ordering paragraph indicating that Classes A and B to deviate from the 10 percent cap on a case-by-case basis in GRCs;[101]
- a new ordering paragraph stating in part that "where this Decision requires utilities to take actions, including providing evidence or information, or making proposals, in their next [GRC] applications, but need not undertake each such action in their next [GRC] applications;"[102] and
- recognition that ORA and GSWC propose a deviation from the 10 percent cap in a settlement in GSWC's currently pending GRC.[103] In sum, GSWC is "generally supportive of the direction prosed by the PD."[104]

7.4. ORA

7.4.1. Opening Comments

ORA finds the PD's direction toward taking into account long-run marginal cost in rate design to be progressive but urges changes in the findings of facts, conclusions of law and ordering paragraphs that it claims would make for more flexibility and opportunity for information gathering, particularly concerning the transition to AMI.[105] ORA contends that the modifications it recommends are "minor," allowing the "PD's estimable goals, including smart

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[100] *Id.* Appendix A at 1.

[101] *Ibid.*

[102] *Ibid.*

[103] *Id.* at 6-7.

[104] *Id.* at 1.

[105] Opening Comments of the Office of Ratepayer Advocates on the Proposed Decision Providing Guidance on Water Rate Structure and Tiererd Rates (October 27, 2016) at 2 and Attachment A at 1-4.

water conservation, to move forward while ensuring that data and technology solutions are utilized as effectively and as cost-efficiently as possible."[106] The modifications include:

- clarification that AMI "should occur in situations where a network and a customer interface are available;" as " the value of AMI is not fully captured in situations [perhaps "in rural areas where broadband or cell phone access is not ubiquitous"]where customers do not have easy access to a computer or the internet;"[107]
- delete the requirement that water utilities "begin installing AMI meters within six months" as [n]either the PD nor the record in this proceeding examines the bill impacts on customers" of AMI installations;[108]
- incorporation of the results of the ongoing pilot programs "especially regarding effectiveness of AMI and cybersecurity lessons learned into the utility's GRC proposals for AMI and AMR;"[109]
- avoid moving away from the Best Management Practices of the California Urban Water Council (revised in 2015) toward adjustments in the percentage of revenue recovery gained from fixed charges, given in part that "there is a limited record on this issue in this proceeding and there is no evidence that this shift would not concurrently disrupt price signals;"[110] and
- the PD should not endorse an Advice Letter /SRM process for automatically adjusting rates that examines only one variable (revenue or costs) "represents legal error as no consideration is given to the anticipated overall return resulting from the rate

[106] *Id. at 1.*

[107] *Id.* at 3.

[108] *Id.* at 4-9.

[109] *Id.* at 9-10.

[110] *Id.* at 10-12.

change;" further the PD "commits technical and factual error by repeating the mistaken claim that the SRM would reduce WRAM balances."[111]

7.4.2. Reply Comments

ORA continues its opposition to the PD's AMI implementation directive.[112]

The following positions are taken in ORA's reply comments.

- Repeats contention that the PD "has veered into ratemaking by dictating specific AMI installation, resulting in potentially significant utility expenditures and rate impacts,"[113] warranting opportunities for customer notice and comment on bill impacts.
- Concurs with CWA that OP 15's insistence that GRC settlements be consistent with the PD's AMI directives may inadvisably interfere with pending settlements.[114]
- Adherence to precedence of 10 percent cap on amortization of WRAM/MCBA balances should remain.[115]
- ORA opposes CWA's position that the PD should countenance an advice letter process for implementing an SRM between GRCs.[116]
- CWA's advocacy for a longer-term interest rate on WRAM/MCBA balances is contrary to Goal and Objective number 7[117] ("Provide conservation incentives for customers and utilities consistent with the Commission's and state policies").

In sum, ORA continues its recommendations for the modifications to the PD urged in its opening and reply comments.

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111 *Id.* at 12-13.

112 Reply Comments of the Office of Ratepayer Advocates at 1.

113 *Id.* at 2.

114 *Id.* at 2-3.

115 *Id.* at 3.

116 *Ibid.*

117 *Id.* at 4.

7.5. Mutual Water Companies

7.5.1. Opening Comments

The Mutuals urge adoption of the PD but seeks greater rate base reform.[118] The Mutuals are "thrilled to see that experimentation with alternate Conservation Rate Design is encouraged on the Proposed Decision."[119] The Mutuals see price elasticity in the first tier, concluding that "customers who use water only in the lowest rate tier receive no significant conservation signal, especially if the lowest tier price is far below the averaged fully distributed cost of water."[120] This leads the Mutuals to assert that the "goal of Conservation Rate Design is to stimulate conservation at some significant level from all persons." The Mutuals take the position that the impact of rate base growth on affordability is not covered in the workshops or the PD.[121]

7.6. Revisions to Proposed Decision

In response to comments, the assigned Commissioner made minor changes and clarifications to the proposed decision. The Commission made a further minor change to the revised proposed decision, and adopts it as revised.

8. Assignment of Proceeding

Catherine J.K. Sandoval is the assigned Commissioner and Gary Weatherford is the assigned ALJ in this proceeding.

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118 The Mutual Water Companies' Comments on the Proposed Decision of Commissioner Sandoval at 5.

119 *Id.* at 3.

120 *Id.* at 2.

121 *Id.* at 3-5.

Findings of Fact

1. An inclining tiered rate structure is designed to promote conservation, but must be accompanied by timely information to consumers to signal conservation.
2. Universal rate design for all water IOUs would not reflect the differences in operating, geographic, and water supply characteristics between various water utility districts.
3. It is reasonable to increase the percentage of fixed costs included in the service charge to reduce WRAM/MCBA balances and surcharges, provide greater certainty of revenue requirement recovery, and reduce inter-cycle and intergenerational rate recovery shifts.
4. Increases in service charges to recover more rates through fixed costs should not diminish the conservation incentive provided through increasing rate tiers for quantity usage.
5. A 10 percent cap on the amount of WRAM/MCBA revenue that can be recovered in a year will be reviewed in GRCs to protect against rate shock, particularly as other rate design changes are implemented to reduce WRAM/MCBA balances. Greater amounts are recovered over longer periods.
6. Many customers have expressed difficulty in understanding the WRAM/MCBA mechanism and its interaction with rates and revenue recovery, decreasing its effectiveness and increasing administrative burdens.
7. In D.08-02-036, the Commission stated that one of the goals of the WRAM was to sever the relationship between sales and revenue to remove the disincentive to implement conservation rates and conservation programs.
8. In D.13-05-011, the Commission found that in some service areas there were high WRAM balances that lead to high WRAM surcharges, due to the inaccuracy of forecasters' estimates of water consumption.

9. Authorizing Class A and B water IOUs to consider filing a Tier 2 advice letter requesting an SRM to conform water forecasts authorized in the GRC to actual consumption in light of the circumstances faced in their districts

10. Through an SRM, if recorded sales differ by more than 5 percent from adopted sales, an IOU is authorized to adjust its overall sales forecast by 50 percent of the recorded sales variation, flow that change through the revenue requirement, and calculate rates based on the adjusted sales for the remainder of the GRC rate case cycle years, and provide notice to customers that the rate change is due to the SRM, and collect the 50 percent balance of that difference through a WRAM or surcharge.

11. AMI reduces water leakage by providing real time information on water use to customers and system operators, reduce costs for meter reading, provides timely information about backwash incidents that may affect water quality, and improves system management.

12. AMI enables real-time information for customers and water managers that current water meters cannot provide.

13. It is reasonable to consider installing AMI for meter replacements, new construction, and for transitioning flat rate customers to metered customers to enable customers to receive closer to real-time water usage information than is available today.

14. It is reasonable to require Class A and B water utilities to propose in their GRC, or in separate, standalone applications, AMI meters for existing customers, and a schedule to transition existing customers to AMI.

15. It is reasonable to consider new forecasting methods to increase accuracy and reduce WRAM/MBCA balances.

16. The application of SRM to modify forecasts in escalation years may be reasonable for some utilities, and Class A and B water utilities may propose an SRM in the GRC if necessary to achieve conservation, sustainability, and equity incentives in light of other rate design proposals.

17. To send accurate conservation signals to customers, it is reasonable to authorize Class A and B water IOUs to propose rate design changes such as billing water at daily usage, consistent with AMI readings, as opposed to the current practice of billing for water consumption based on monthly usage.

18. Water rate or low-income programs based on household size raise verification and administration issues that undercut their effectiveness and reliability.

19. Changes in low-income programs are being considered through other proceedings and by other state agencies, and may be affected by changes in rate design, indicating that it is not timely to adjust low-income programs through this Decision.

20. The record supports changes to existing rate design to allow for more flexibility, and flexibility is required in water utility rate design to enable creative consideration of conditions affecting water districts and utilities including variable water sources, geography, customer base, and other factors.

21. Proposed settlements are often used to resolve GRCs. After the date of this Decision, requiring proposed settlements filings to respect this Decision's Orders, the principles adopted herein, and the Goals and Objectives of Attachment A is necessary to finding that any proposed settlement is in the public interest.

Conclusions of Law

1. The changes proposed in Phase II of this rulemaking conform to the policy direction given in Pub. Util. Code § 701.10.

2. This Decision implements Governor Brown's Executive Order B-37-16 issued May 9, 2016 to order water utilities to accelerate steps to minimize leaks including implementing AMI for flat to meter conversion, replacement of aging or broken analog meters, new construction, and new customers.

3. Authorizing Class A and B utilities to consider filing a Tier 2 Advice letter to implement a drought SRM is consistent with this Commission's resolutions to promote conservation, our policies to communicate transparent cost-signals to ratepayers, and Pub. Util. Code § 701.10.

4. Ordering Class A and B utilities to propose in their next GRC filings: adjustments to forecast mechanisms; an SRM or alternative to reduce reliance on WRAMs and surcharges; changes in tiered rate structures; very high tiers, superuser charges, or other mechanisms to address outlier high water users including incorporation of Long Run Marginal Cost of water into some tiers; and shifts to collect more revenue from fixed as opposed to variable charges, in addition phasing in a transition to ARM, is consistent with Pub. Util. Code § 701.10 and this Commission's policies to promote conservation, cost-based rates, equity, flexibility to account for local circumstances, and to promote more transparency and data access for consumers and water system managers.

5. This Decision should be effective today to provide timely notice to Class A and Class B water utilities in advance of their next GRC application and filings.

6. This proceeding should be closed.

O R D E R

IT IS ORDERED that:

1. For General Rate Case or separate, stand-alone applications following the effective date of this Decision, Class A and Class B water utilities shall consider proposing rate designs which implement the various changes discussed herein.

2. Class A and B water Investor-Owned Utilities shall propose improved forecast methodologies in their General Rate Case application, or in standalone, separate applications, following the effective date of this decision to more accurately determine how authorized revenue determined in a General Rate Case will be collected through water rates, and shall consider consumption trends during and following the drought that began in 2013, and factors that may affect consumption in the next General Rate Case such as drought, flood, climate change, water supply, any proposals to shift the collection of rates to fixed as opposed to variable charges, and the transition to Advanced Metering Infrastructure.

3. Class A and B Water Investor-Owned Utilities that have a five percent or greater divergence (higher or lower) between authorized and actual revenue during a drought period in their current General Rate Case cycle, shall consider filing for an individual district or several districts a Tier 2 Advice Letter requesting a Sales Reconciliation Method to conform water forecasts authorized in the current General Rate Case to actual consumption, in light of the drought and circumstances faced in their district(s).

4. Except where Sales Reconciliation Mechanism (SRM) has already been authorized, Class A and B Water Investor-Owned Utilities may file in the next General Rate Case application following this Decision a proposal to institute an SRM that puts at least 50 percent of the divergence between authorized and

actual sales in rates to be recovered through the remainder of the General Rate Case cycle, or alternative mechanisms to reduce Water Revenue Adjustment Mechanism balances and surcharges, and provide timely cost information to customers.

5. Class A and B water utilities shall consider proposing pilot programs in their next General Rate Case application to implement very high tiered rates, a superuser charge, or other mechanisms to enable the utility to provide clear conservation signals to outlier users.

6. Class A and B water utilities shall propose pilot programs in their next General Rate Case application, or in a separate, standalone application, to adjust tiers, impose a superuser charge, or deploy other mechanisms taking into account other rate design changes and deployment of Advanced Metering Infrastructure to promote conservation, rate recovery, cost-based rates, and equity, providing analysis and a showing to allow the Commission to evaluate the likely effectiveness of those proposals.

7. Class A and Class B water utility Advanced Metering Infrastructure (AMI) proposals currently before the Commission shall receive due consideration. Class A and Class B water utilities shall consider filing, in the General Rate Case or in a standalone, separate application, proposals for Commission consideration to deploy AMI when converting flat rate customers to metered customers, for replacement of obsolete or damaged meters, and for meters in new construction. In districts or areas where the existing or anticipated communications infrastructure and other factors indicate that Advanced Meter Reading (AMR) would be substantially more cost-effective than AMI, Class A and B water utilities may deploy AMR to such customers if comparable leak detection and data communication benefits can be achieved. The Commission will decide on

the appropriateness of Class A and B water utility proposals in the respective General Rate Cases or standalone applications.

8. Class A and Class B water utilities shall submit a report to the Commission's Water Division anytime within 18 months detailing some challenges, successes, and/or lessons learned from the Advanced Metering Infrastructure (AMI) installation application process, Advanced Metering Infrastructure project development process, or AMI pilot or project installation process currently ongoing. This information gathering should assist in the AMI development and can be used in General Rate Case or standalone, separate AMI proposals and applications.

9. Class A water utility Advanced Metering Infrastructure (AMI) proposals currently before the Commission shall receive due consideration. Class A water utilities shall propose in their next General Rate Case application, or in a separate, standalone application, AMI meters for existing customers, and a schedule to transition existing customers to such meters. Those proposals may identify districts or areas where the existing or anticipated communications infrastructure and other factors indicate that Advanced Meter Reading (AMR) would be substantially more cost-effective than AMI, and deploy AMR if comparable leak detection and data communication benefits can be achieved. Utilities should propose policies consistent with those established in Decision 14-12-078 regarding customers' ability to opt out of AMI meter installations.

10. Class B water utilities shall propose within their next two General Rate Cases cycles, or in separate, standalone applications, to transition existing customers to Advanced Metering Infrastructure (AMI) meters. Those AMI proposals may identify districts or areas where the existing or anticipated

communications infrastructure and other factors indicate that Advanced Meter Reading (AMR) would be substantially more cost-effective than AMI, and deploy AMR if comparable leak detection and data communication benefits can be achieved. Utilities should propose policies consistent with those established in Decision 14-12-078 regarding customers' ability to opt out of AMI meter installations.

11. Class A and Class B water utilities shall propose and provide in their General Rate Case application information and analysis that provides estimates of long run marginal costs based on information about water supplies reasonably likely to be available to that utility and other factors as described in this Decision, and how such costs should be applied in proposed rate designs. We give flexibility to Class A and Class B water utilities to propose rate design that reflects long run marginal cost in all but the bottom tier, only in upper tiers, to target outlier users with extremely high consumption, or alternative mechanisms to address high water consumption, particularly by outlier users.

12. Class A and B water utilities that seek to adjust their current rate designs and take advantage of the flexibility proposed in this decision shall consider proposing in their General Rate Case applications, or in separate, standalone applications, adjustments to tiered rates to promote conservation, rate recovery, cost-based rates, and equity, providing analysis and a showing to allow the Commission to evaluate the likely effectiveness of those proposals. Such rate design proposals shall propose mechanisms to provide reasonable customer rates and equity for low-income customers, particularly since low-income customers suffer from significant increases in water bills, while providing conservation incentives.

13. Class A and Class B water utilities shall consider proposing in their General Rate Case application adjustments to the percentage of revenue recovery collected from fixed charges with a floor of at least 40 percent of revenues collected from fixed charges and up to 50 percent fixed charges, or submit alternative proposals to reduce reliance on Water Revenue Adjustment Mechanism (WRAM)/Modified Cost Balancing Account balances, maintain an incentive for conservation of water, and address utility circumstances. Such proposals shall consider the impact of shifting revenue recovery to fixed costs on low-income customers and propose appropriate adjustments to low-income programs to maintain affordability and equity, while signaling conservation and reducing reliance on WRAM balances and surcharges.

14. Revised rate design proposals shall provide revisions in low-income programs where necessary and appropriate to maintain affordability and equity.

15. After the date of this Decision, proposed Class A and Class B water utility General Rate Case settlements shall indicate how this Decision and the goals and objectives of Attachment A meet the public interest test for evaluation of settlement proposals.

16. Rulemaking 11-11-008 is closed.

This order is effective today.

Dated December 1, 2016, at San Francisco, California.

MICHAEL PICKER
President
MICHEL PETER FLORIO
CATHERINE J.K. SANDOVAL
CARLA J. PETERMAN
LIANE M. RANDOLPH
Commissioners

Attachment A

Goals and Objectives for Balanced Rate Design

1. Implement the legal requirement that investor owned water utilities provide safe and reliable water supply and delivery at just and reasonable rates.

2. Promote efficient use of water, promptly identify and fix water leaks, and reduce the incidents of system and customer water leaks, consistent with state law.

3. Simplify rate design, customer notices, and customer bills while providing necessary information for customers to make wise choices about their use, and transparent information about water service costs and the regulatory process.

4. Consider in rate design marginal costs including long run marginal costs of anticipated sources of water.

5. Align cost recovery with revenue requirement in balance with the Commission's and the state's public policy goals.

6. Provide protections for low-income customers consistent with the Commission's and state policies.

7. Provide conservation incentives for customers and utilities consistent with the Commission's and state policies.

8. Initiate investment in Advanced Metering Infrastructure (AMI) that will enable both customers and the utilities to observe usage and costs in real time to promote more efficient and effective water conservation and advance water safety such as through prompt identification of backflow incidents that may put water quality at risk.

9. Provide opportunity for timely utility recovery of its revenue requirement.

10. Align utility risk and return in a way that affords the utility an opportunity to attract capital for investment on reasonable terms.

11. Reduce or eliminate the causes of high WRAM/MCBA surcharges and extended recovery periods, including through realigning revenue recovery to increase the percentage of revenues recovered from as compared to variable rates.

12. Improve sales forecasting methodology.

13. Optimally balance investment, conservation, and affordability.

14. Optimally amortize current reasonably incurred balances in WRAM/MCBA and drought-related revenue shortfall mechanisms.

(End of Attachment A)